

HARMONY

ITS THEORY AND PRACTICE



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HARMONY:

ITS THEORY AND PRACTICE.

BY

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"Untwisting all the Chains that Tie
The Hidden Soul of Harmony.

MILTON, L'Allegro.

PREFACE.



So large a number of works on Harmony already exists that the publication of a new treatise on the subject seems to call for explanation, if not for apology. The present volume is the outcome of many years' experience in teaching the theory of music, and the author hopes that it contains sufficient novelty both in plan and in matter to plead a justification for its appearance.

Most intelligent students of harmony have at times been perplexed by their inability to reconcile passages they have found in the works of the great masters with the rules given in the text-books. If they ask the help of their teacher in their difficulty, they are probably told, "Bach is wrong," or "Beethoven is wrong," or, at best, "This is a licence." No doubt examples of very free part-writing may be found in the works of Bach and Beethoven, or even of Haydn and Mozart; several such are noted and explained in the present work. But the principle must surely be wrong which places the rules of an early stage of musical development above the inspirations of genius! Haydn, when asked according to what rule he had introduced a certain harmony, replied that "the rules were all his very obedient humble servants"; and when we find that in our own time Wagner, or Brahms, or Dvořák breaks some rule given in old text-books there is, to say the least, a very strong presumption, not that the composer is wrong, but that the rule needs modifying. In other words, practice must precede theory. The inspired composer goes first, and invents new effects; it is the business of the theorist not to cavil at every novelty, but to follow modestly behind, and make his rules conform to the practice of the master. It is a significant fact that, even in the most recent developments of the art, nothing has yet been written by any composer of eminence which a sound theoretical system cannot satisfactorily account for; and the objections made by musicians of the old school to the novel harmonic progressions of Wagner are little more than repetitions of the severe criticisms which in the early years of the present century were launched at the works of Beethoven.

It is from this point of view that the present volume has been written. The rules herein given, though in no degree inconsistent with the theoretical system expounded, are founded, not upon that, nor on any other abstract system, but upon the actual practice of the great masters; so that even those musicians who may differ most widely from the author's theoretical views may still be disposed to admit the force of practical rules supported by the authority of Bach, Beethoven, or Schumann.

The system of theory propounded in the present volume is founded upon the dictum of Helmholtz, quoted in Chapter II. of this work (§ 42), that "the system of Scales, Modes, and Harmonic Tissues does not rest solely upon unalterable natural laws, but is at least partly also the result of æsthetical principles, which have already changed, and will still further change with the progressive development of humanity." While, therefore, the author follows Day and Ouseley in taking the harmonic series as the basis of his calculations, he claims the right to make his own selection, on æsthetic grounds, from these harmonics, and to use only such of them as appear needful to explain the practice of the great masters. Day's derivation of the chords in a key from the tonic, dominant, and supertonic is adhered to, but in other respects his system is extensively modified, its purely physical basis being entirely abandoned. It will be seen in Chapter II. (§ 44) that by rejecting altogether the eleventh and thirteenth notes of the harmonic series, and taking in their place other notes produced among the secondary harmonics, the chief objection made by the opponents of all scientific derivation of harmony—that two of the most important notes of the scale, the fourth and the sixth, are much out of tune—has been fully met. In the vexed question of the minor tonic chord, Helmholtz is followed to a considerable extent; but Ouseley's explanation of the harmonic origin of the minor third is adopted.

Truth is many sided; and no writer on harmony is justified in saying that his views are the only correct ones, and that all others are wrong. No such claim is made for the system herein set forth; but it is hoped that it will at least be found to be intelligible, perfectly consistent with itself, and sufficiently comprehensive to explain the progressions of the advanced modern school of composers.

It has been thought desirable to separate as far as possible the practical from the theoretical portions of this work. The latter are therefore printed in smaller type; and it will be found

advisable for beginners, who may take up this work without any previous knowledge of the subject, to omit at least Chapters II. and III., dealing with the Harmonic Series and Key or Tonality, until some considerable progress has been made in the practical part of the volume. The exact point at which the student will do well to return to the omitted portions will depend upon his progress and his general intelligence, and must be left to the discretion of the teacher.

In the practical part of the work an attempt has been made to simplify and to codify the laws. With a view of effecting these objects, many rules now obsolete, and contravened by the daily practice of modern writers, have been altogether omitted, and others have been greatly modified; while the laws affecting the chords, especially the higher discords—the ninths, elevenths, and thirteenths—have been classified, and, it is hoped, materially simplified. It is of the utmost importance that students who wish to master the subject should proceed steadily and deliberately. For example, a proper understanding of the chords of the eleventh will be impossible until the student is quite familiar with the chords of the ninth, which in their turn must be preceded by the chords of the seventh. The learner's motto must be, "One thing at a time, and that done thoroughly."

In preparing the exercises a special endeavour has been made to render them interesting, as far as possible, from a musical point of view. With this object they are, with a few exceptions, written in the form of short musical sentences, mostly in four-bar rhythm, illustrating the various forms of cadence. To stimulate the pupil's imagination, and to encourage attempts at composition, many exercises are in the form of double chants or hymn tunes. Each bass can, of course, be harmonised in several different positions; and the student's ingenuity will be usefully exercised in trying to write as melodious an upper part as possible for these little pieces.

Not the least interesting and valuable feature of the volume will, it is believed, be found in the illustrative examples, considerably more than 300 in number. These have been selected chiefly, though not exclusively, from the works of the greatest masters, from Bach and Handel down to the present day. Earlier examples are not given, because modern harmony may be said to begin with Bach and Handel. While it has been impossible without exceeding reasonable limits to illustrate *all* the points mentioned, it is hoped that at least no rule of importance has been given without quoting some recognised author in its support. It may at all

events be positively said that, had want of space not prevented their quotation, examples might have been found to illustrate every rule laid down in the volume.

It was originally intended to have included in the present work chapters on Cadences, and on Harmonising Melodies. The volume has, however, extended to so much larger dimensions than was at first contemplated, that these chapters, which belong rather to practical composition than to harmony in its strict sense, have been reluctantly omitted. It is intended to follow the present work by a treatise on Composition, in which these and similar subjects will be more appropriately dealt with.

The author desires to acknowledge the valuable assistance he has received in the preparation of his work, first and foremost from his son, Louis B. Prout, to whom he is indebted for a very large number of the illustrative examples, and who has also written many of the exercises. Valuable aid has also been received from the late Rev. Sir Frederick Ouseley, with whom, down to the time of his lamented death, the author was in frequent correspondence on the subject of this work. To his friend, Dr. Charles W. Pearce, also, the author must express his thanks for much generous interest and many most useful suggestions, as well as for his kind assistance in revising the proof-sheets of the volume.

It would be unreasonable to expect that the present work will meet with universal approval; but it may at least claim to appeal to teachers and students as an honest attempt to simplify the study of harmony, and to bring it down to date.

LONDON, *June*, 1889.

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[*N.B.—The numbers refer in every instance to the* sections, *not to the pages.*]

HARMONY:

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CHAPTER I.

INTRODUCTION.

1. A certain amount of elementary knowledge of music will be necessary to the student before beginning the study of the present work. It will be assumed that he is acquainted with the names of the notes, the meanings of the various musical signs (accidentals, &c.), the relative time values of notes of different lengths, and such other matters as are treated of in ordinary text-books on the Elements of Music.

2. A musical sound is produced by the periodic vibration of the air, that is to say, its motion at a uniform rate. When the air moving at a uniform rate comes in contact with the nerves of hearing, there is produced, provided the motion is sufficiently rapid, what is called a musical sound, or note. The *pitch* of a sound (that is, its being what is called a *high* or a *low* note), depends upon the rapidity of the vibration. This will be seen later (*see* Chapter II., § 35); all that is needed now is that the student shall understand what is meant when we speak of a musical sound.

3. If sounds of different pitch are heard one after another, we get what is called MELODY; if sounds of different pitch are heard together, we get HARMONY. It is the laws of harmony that we shall explain in this book; but it will be seen as we proceed that the question of melody is often so closely connected with that of harmony, that it is impossible to treat of one without also paying some attention to the other.

4. If two different notes are sounded, either in succession or together, it is clear that one of the two must be the higher, and the other the lower. The difference in pitch between two sounds is called the *Interval* between them. This difference may be so small as to be hardly recognisable by the ear; or it may be as great as between the lowest and highest notes in a large organ, or anything between the two. An infinite number of intervals is possible; but in music we make a selection, the nature of which will be explained later. For the present we are merely defining the meaning of the word "Interval."

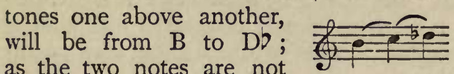
5. The smallest interval used in music is called a SEMITONE.* We may define a Semitone, as *the distance between any one note, and the nearest note to it, above or below, on any instrument which has only twelve sounds in the octave.* For example, on the piano, the nearest note to C is B on the one side (below), and C♯ on the other side (above). From B to C, and from C to C♯ are therefore both semitones. Similarly from F♯ to F♮, and from F♯ to G will be semitones; but from G to A will not be a semitone; for A is not the nearest note to G; G♯ (or A♭), comes between them.

6. If the semitones on each side of C be compared,

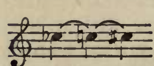


it will be seen that there is a difference between them. C and B are on two different places of the staff; one is on a line and the other on a space; but C and C♯ are both on the same place in the staff; but the latter note has an accidental before it. A semitone of which the two notes are on different degrees of the staff is called a *diatonic* semitone; the word "diatonic" means "through the tones, or degrees of the scale." A second meaning which is attached to the word will be explained later (§ 72). When the two notes of the semitone are on the same degree of the staff, and one of the two is altered by an accidental (*e.g.*, C to C♯) the semitone is called *chromatic*, a word literally meaning "coloured." This use of the word will be further explained later.

7. As the word *semitone* means "half tone," it is evident that two semitones together will make a *tone.* Thus in the example given in § 6, as we find a semitone from B to C, and another semitone from C to C♯, the whole interval from B to C♯ is a tone. But as a tone is always composed of two notes on adjacent degrees of the staff, one being always on a line, and the other on the next space, above or below, it is necessary that *of the two semitones one must be diatonic and one chromatic.*† For if we take two diatonic semitones one above another, the resulting interval will be from B to D♭; which is not a tone as the two notes are not on the next degrees of the scale to one another. And if we take two chromatic semitones,



it is equally clear that they will not make a tone; for now the resulting notes C♭ and C♯ are both on the same degree of the staff.



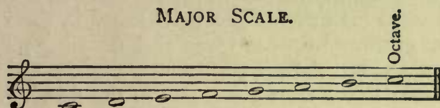
* In one sense this statement is not strictly accurate, as the "enharmonic diesis" (§ 52) is sometimes used in modulation. For ordinary purposes, however, the statement in the text is correct.

† The two semitones composing a tone are not of exactly the same size. It will be seen later (§ 50) that a diatonic semitone is larger than a chromatic; neither semitone is therefore exactly *half* the tone; but as the difference is of no practical importance in harmony, the student need not regard it. It is only mentioned here for the sake of accuracy.

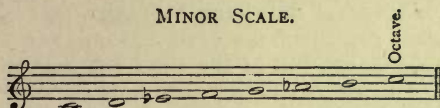
8. A Scale is a succession of notes arranged according to some regular plan. Many different kinds of scales have been used at various times and in different parts of the world; in modern European music only two are employed, which are called the *diatonic* and the *chromatic* scale.

9. The word "diatonic" has been already explained in § 6 as meaning "through the degrees." A diatonic scale is a succession of notes in which there is one note, neither more nor less, on each degree of the staff—that is to say, on each line and space. The way in which the scales are constructed will be explained later (*see* Chapter III.); at present we simply give the forms of them. There are two varieties of the diatonic scale, known as *major* (or greater) and *minor* (or less) scale from the nature of the interval between the first and third notes of the scale.

Major Scale.



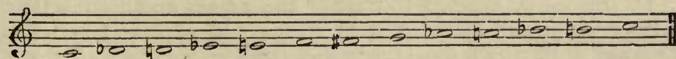
Minor Scale.



Other forms of the minor scale frequently to be met with will be explained later. It will be seen that each of these scales contains only seven different notes. This is because the eighth note, or *octave* (*Latin*, "octavus" = eighth), is a repetition of the first note at a different pitch; and from this note the series recommences.

10.—The scientific reason why octaves resemble each other so much more closely than two notes at any other interval is that the upper of two notes at a distance of an octave from one another is the first "upper-partial" tone (§ 36) of the lower, and that all its harmonics are also harmonics of the lower note; therefore, the "compound tone" (Chapter II., § 40) of the higher note contains no new sound, which is not also in the compound tone of the lower note. The higher note is merely the reinforcement of certain upper-partials of the lower note; but this is not the case with two notes at any other interval than the octave, or, of course, the double octave, &c.

11. A *chromatic* scale is a scale consisting entirely of semitones, and it is called chromatic because some of its notes require accidentals (flats or sharps) before them (§ 6).



As will be explained later, the chromatic scale is frequently written in a different way from that here given; but, however written, it equally consists of semitones.

12. The different degrees of the diatonic scale (§ 9) are known by different names, with which it is necessary that the student should be perfectly familiar, as they are of constant occurrence. The first note of the scale is called the TONIC, or KEY-NOTE. This is the note which gives its name to the scale and key. The scales in § 9, for instance, are the scales of C major and C minor, and it will be seen that they both begin with the note C. The term "tonic" is used in harmony much more frequently than "key-note." The most important note in a key after the tonic is the fifth note of the scale. For this reason it is called the DOMINANT, or ruling note of the key. The fourth note of the scale lies at the same distance *below* the tonic that the fifth note lies *above* it. This will be seen at once by beginning at the top of the scale and descending. This fourth note is therefore called the SUBDOMINANT, or lower dominant. We have now got appropriate names for three of the chief notes in the key.

13. About midway between tonic and dominant lies the third note of the scale. We shall see presently that in the major scale it is rather nearer to the dominant, and in the minor rather nearer to the tonic; but, roughly speaking, it is in the middle between the two. It is therefore called the MEDIANT, that is, the middle note. The sixth degree of the scale lies midway between the tonic and subdominant, just as the third lies between tonic and dominant. We therefore call this sixth note the SUBMEDIANT, or lower mediant. Some writers on harmony call this note the "Superdominant," or note above the dominant; but the name Submediant is much more usual, and in every way preferable. The second note of the scale is called the SUPERTONIC, *i.e.*, the note above the tonic; and the seventh note of the scale, which, it will be seen later, has a very strong tendency to lead up, or rise to the tonic is on that account called the LEADING NOTE. It is sometimes, though rarely, called the 'Subtonic,' from its position as the next note below the tonic.

14. Having shown the origin and meaning of these different names, we will now tabulate them.

First Degree of the Scale			=	Tonic (Key-note).
Second	,,	,,	=	Supertonic.
Third	,,	,,	=	Mediant.
Fourth	,,	,,	=	Subdominant.
Fifth	,,	,,	=	Dominant.
Sixth	,,	,,	=	Submediant (Superdominant).
Seventh	,,	,,	=	Leading Note (Subtonic).

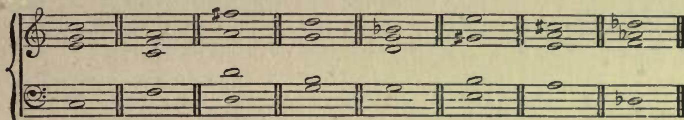
15. Before proceeding to treat of the names and classification of Intervals, it will be needful to define and explain two terms which we shall very frequently have to use in speaking of them. These are the terms CONSONANCE and DISSONANCE.

16. A consonant interval, or CONSONANCE, is a combination of two sounds, which by itself produces a more or less complete and

satisfactory effect, *i.e.*, which does not necessarily require to be followed by some other combination. For example, if the student will strike on the piano any of the following pairs of notes, pausing between each,

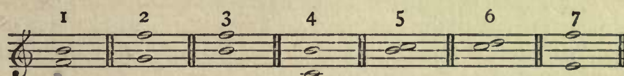


he will find that each is more or less satisfactory. A consonant chord is a chord of which all the notes make consonant intervals with one another.

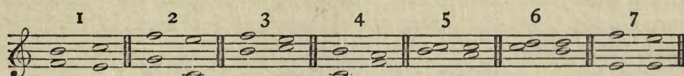


Let the student play each of these chords separately on the piano—they are not intended to be connected—and he will find that each by itself produces a satisfactory effect. When he has learned, later in this chapter, which are the consonant intervals, he will see that no others have been used in these chords.

17. A dissonant interval, or Dissonance, is a combination of two notes which by itself produces an impression of incompleteness, so that the mind urgently feels the need of something else to follow. Let the student strike on the piano the following pairs of notes, pausing, as before, after each.



Everyone will feel the incomplete effect of these combinations, and that they require to be followed by something else to be satisfactory. Let us try. We will put after each of these dissonances a consonance, and it will be at once felt that the completeness which was before wanting has now been obtained.

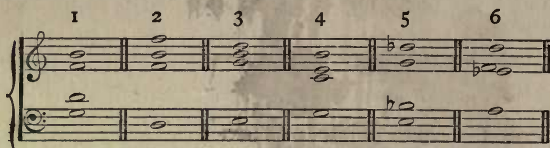


The consonance which follows the dissonance is called the Resolution of the dissonance. The laws according to which dissonances are resolved will be learned later.

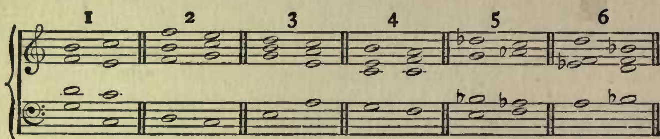
18. A dissonant chord, or Discord,* is a chord which contains at least one dissonance among the intervals made between the various notes. Like a dissonant interval, a dissonant chord

* The term "Discord" is also sometimes applied merely to the dissonant note itself.

has by itself an incomplete effect. Let the student play the following dissonant chords, and he will feel this.



Now, as before with the dissonant intervals, let us put after each chord a consonant chord for its resolution. The satisfactory effect is felt at once. In general, it may be said that consonance is a position of rest, and dissonance a position of unrest.



19. Intervals are always reckoned upwards, unless the contrary be expressly stated. Thus "the third of C" always means the third above C; if the third below is intended, it must be so described. The number of an interval is always computed according to the number of degrees of the scale that it contains, including both the notes forming the interval. Thus from C to E is called a *third*, because it contains three degrees of the scale, C, D, E. Beginners are apt to get confused on this point, and to think of D as the first note above C, and E as the second. But the note C is itself counted as the first note of the interval. Similarly, from G to D is a fifth, from F to D a sixth, and so on in all other cases. The same reckoning, but in the reverse direction, applies to the intervals below. Thus A is the third below C, D is the fourth below G, &c. Let the student examine the major scale of C in § 9, and he will find within the compass of the octave there given two 7ths, three 6ths, four 5ths, five 4ths, six 3rds, and seven 2nds. It will be a useful exercise for him to discover them for himself.

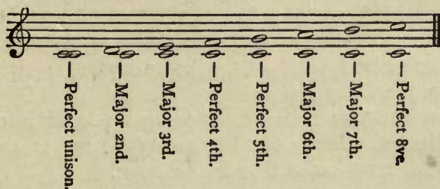
20. An interval larger than an octave is called a *compound* interval. Thus the interval [music] is compounded of the octave, C to C, and the third, C to E. (The octave is printed here as a small note.) Obviously, in addition to the third at the top, the interval contains the seven notes of the lower octave from C to B. The upper C is already counted as part of the third. Thus the number of a compound interval is always 7 more than that of the simple interval to which the octave is added. Therefore,

A Compound 2nd	=	A 9th.
,, 3rd	=	A 10th.
,, 4th	=	An 11th.
,, 5th	=	A 12th.
,, 6th	=	A 13th.
,, 7th	=	A 14th.

We never speak of a "compound octave." Such an interval would be called a "double octave." Excepting the 9th, 11th, and 13th, with which we shall presently make closer acquaintance, all compound intervals are, for purposes of harmony, identical with the simple intervals to which they correspond. There is no difference in the treatment of a 3rd and a 10th, a 5th and a 12th, or a 14th and a 7th. We, therefore, never use the names of these compound intervals in harmony.

21. If the student will examine the intervals contained among the notes of the diatonic scale (as we recommended in § 19), he will see that those which have the same name are not always of the same size. From C to E, for instance, is a third, and so is from D to F; but the former contains two tones (C to D and D to E), and the latter only one tone (D to E) and a semitone (E to F). Similarly the fourth from C to F is smaller than the fourth from F to B, and the sixth from C to A is larger than the sixth from E to C. And if we put accidentals before some of the notes, we shall get still further differences. It is clear, therefore, that the general description of an interval as a second, third, fourth, &c., is not sufficiently precise to show its exact nature. In order to obtain greater accuracy, intervals are described by one or other of the following adjectives:—*perfect*, *major*, *minor*, *augmented*, and *diminished*. These terms we shall now explain.

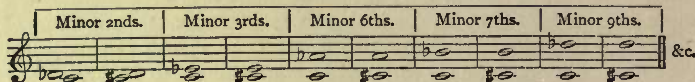
22. As a basis for our classification, we take the major scale, and first reckon all the intervals upwards from the tonic, that is, taking the tonic in each case as the lower note of the interval. It is evident that we shall obtain in succession a 2nd, a 3rd, a 4th, a 5th, a 6th, a 7th, and an octave. To these may be added the unison, which, though not strictly speaking an interval, is reckoned as such. Of these intervals, the unison, 4th, 5th, and 8th, are termed *perfect*, and the 2nd, 3rd, 6th, and 7th *major*.



The reason why some of these intervals are called perfect, and others major, will be explained presently (§ 30). The compound

intervals have the same prefixes as the simple ones; thus C to D♮ will be a major ninth, C to F a perfect 11th, and so on.

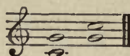
23. An interval which is a chromatic semitone less than a major, is called a *minor* interval. A major interval can be changed into a minor, either by raising the lower note a semitone by an accidental, or lowering the upper one, also by an accidental. Thus from C to E is a major third. If we raise the lower note to C♯, the interval C♯ to E is a minor third. Or if we leave the C alone, and lower the E to E♭, we also get a minor third from C to E♭. But if we alter either note a *diatonic* semitone, we change the name of the note, and therefore of the interval. Thus, C to E being a major 3rd, if we raise C to D♭ instead of to C♯, the interval from D♭ to E is no longer a *third* at all, but a second, of a kind which we shall explain directly. Similarly if we lower E to D♯ instead of E♭, C to D♯ is a second; for the two notes are on adjacent degrees of the staff.



24. An interval which is a chromatic semitone larger than a perfect or a major interval is called *augmented*. Here we reverse the process of making the minor intervals, and we either raise the upper note, or lower the lower note, by means of an accidental. Thus C to F being a perfect 4th, C to F♯ or C♭ to F♮ will be an augmented 4th. Again C to A is a major 6th; and C to A♯ or C♭ to A♮ is an augmented 6th. The augmented 3rds and 7ths are not used in harmony; augmented 2nds, 4ths, and 6ths are frequently, and augmented 5ths occasionally to be met with.

25. An interval which is a chromatic semitone less than a perfect or a minor interval is called *diminished*. As in the cases just spoken of, it is immaterial to the nature of the interval which of the two notes composing it be altered. Let the student refer to the table of minor intervals in § 23. We obviously cannot diminish the minor 2nd, for if we lower D♭ to D♭♭, or raise C to C♯, we shall in either case get an interval smaller than a semitone —what is called an "enharmonic" interval (§ 52)—and it has been already said (§ 5) that the semitone is the smallest interval used in music. The same objection will apply to a diminished 9th. But diminished 3rds, 4ths, 5ths and 7ths, especially the last, are of very frequent occurrence.

26. When the two notes composing an interval change their relative position, the lower one becoming the upper, and the upper the lower, the interval is said to be *inverted*.



Here the first interval is a perfect fifth; if C be placed above G, the interval is inverted, and its inversion is a perfect fourth. The *number* of the inversion of an interval can always be found by subtracting the number of the interval from 9. In the above example it is seen that an inverted 5th becomes a 4th (9–5 = 4); in the same way a 3rd becomes a 6th, a 2nd a 7th, &c. A unison cannot strictly speaking be inverted, as it has no higher or lower note; but it is said to be inverted when one of the two notes is put an octave higher or lower. Similarly, an octave reduced to a unison is generally said to be inverted. Perfect intervals remain perfect when inverted; major intervals become minor, and minor major; augmented intervals become diminished, and diminished augmented.

27. The reason of the rule just given will become clear to the student if he observes that the inversion of any simple interval is the difference between that interval and an octave. Thus a major 3rd, C to E, and its inversion, a minor 6th, E to C, will together make an octave, either C to C, or E to E, according to the note of the 3rd of which the position is changed. A third of any kind taken from an octave must leave a sixth; and if a *larger* (major) third be taken out, a *smaller* (minor) sixth will be left; and conversely, if a smaller (minor) third be taken from the octave, a larger (major) sixth will be left. Evidently the same reasoning will apply to augmented and diminished intervals.

28. Intervals are divided into two classes, consonant and dissonant. These terms have been already explained in §§ 16, 17. The consonant intervals are the unison, octave, perfect fifth, perfect fourth, major and minor third, and major and minor sixth. All other intervals of every kind—all seconds, sevenths, ninths, elevenths, and thirteenths,* and all augmented and diminished intervals—are dissonant.

29. The consonant intervals are further subdivided into *perfect* and *imperfect* consonances. The unison, octave, perfect fourth, and perfect fifth are the perfect, and the major and minor thirds and major and minor sixths are the imperfect consonances. Neither note of a perfect consonance can be altered by an accidental—that is, raised or lowered a chromatic semitone (§ 23)—without changing the interval into a dissonance. But a major third or sixth can be changed to a minor, or *vice versâ*—a minor into a major—and still remain a consonance. This is one difference between perfect and imperfect consonances.

30. The researches of Helmholtz have proved that the distinction between consonant and dissonant intervals is not merely arbitrary, but is the result of the nature of the intervals themselves. In the next chapter we shall see that a musical tone is mostly a compound tone, containing besides its principal tone other tones bearing fixed relations to the lowest note, and called harmonics, or "upper partials." Helmholtz has shown that when two of the earlier-

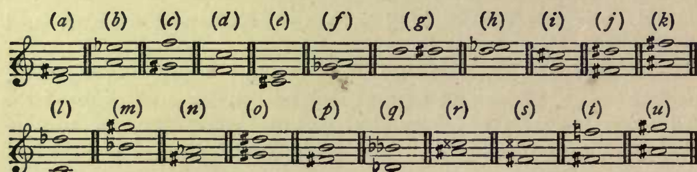
* The thirteenth, being the octave of the sixth, is itself consonant (§ 400), but it is always treated as a dissonance in the chords in which it is found. (*See* Chapter XVI.)

produced and stronger of these upper partial tones coincide in two notes sounded together, the resulting tone is pure and free from the inequalities technically known as *beats*. When this is not the case, the presence of these beats gives a roughness to the tone which is known as dissonance. The most perfect consonances are those in which the upper partials soonest coincide. This is the case with the octave, fourth, and fifth of the major scale. With the unison of course the upper partials are absolutely identical. The explanation of the harmonic series given in the next chapter will, it is hoped, make this clear to the student. In a practical work like the present it is impossible to enter fully into the science of acoustics; we can only touch upon it as far as it is needed in its connection with harmony. The student who wishes for full information on this subject should consult Helmholtz's book, "The Sensations of Tone."

31. We shall conclude this chapter by giving a table of all the intervals and their inversions within an octave from the note C. (See next page.) The student is advised to make similar tables for himself from other notes. Intervals above an octave can only be inverted in the 15th, or double octave. It will be seen that the inversion of a consonance is always a consonance, and of a dissonance always a dissonance.

Exercises on Chapter I.

(1) Write the names of the following intervals, indicating those that are consonant by (C) and those that are dissonant by (D):—



(2) Write the following intervals:—A minor second of B♭ and D♯; a major second of B♮ and G♭; a minor third of G♯ and C♭; a major third of A♭, F♮, and D♯; a perfect fourth of B♭, G♮, and A♯; an augmented fourth of D♭, F♯, and C♯.

(3) Write the perfect fifth of F♮, B♮, E♭, D♯, F×, B♭♭, E♭♭; the augmented fifth of E♮, A♭, C♯, G♮, and B♭; the minor sixth of D♭, G♯, E♭, and G♭; the major sixth of A♭, B♮, E♮, D♯, and C♭; the augmented sixth of E♭, G♮, and A♮; the diminished seventh of E♯, F×, A♮, and C♮; the minor seventh of B♮, A♭, and F♯; the major seventh of C♯, F♮, G♯, E♭, and B♮; and the diminished octave of D♮, B♭, and F×.

(4) Write the minor ninth of F♯, B♭, D♯, G♮, and E♮; the major ninth of F♮, A♭, E♯, G♯, and D♭; the eleventh of E♭, A♯, C♯, and F♯; the minor thirteenth of E♮, G♯, D♮, G♭, F♮, and D♭; and the major thirteenth of G♮, C♭, A♮, E♭, and B♮.

(5) Write the inversions of all the intervals (*a*) to (*u*) in Exercise I, and name each, adding (C) or (D), according to whether they are consonant or dissonant.

Intervals.		Inversions.	
Unisons.	Perfect	Perfect	Octaves.
	Augmented	Diminished	
Seconds.	Minor	Major	Sevenths.
	Major	Minor	
	Augmented	Diminished	
Thirds.	Diminished	Augmented	Sixths.
	Minor	Major	
	Major	Minor	
Fourths.	Diminished	Augmented	Fifths.
	Perfect	Perfect	
	Augmented	Diminished	
Fifths.	Diminished	Augmented	Fourths.
	Perfect	Perfect	
	Augmented	Diminished	
Sixths.	Minor	Major	Thirds.
	Major	Minor	
	Augmented	Diminished	
Sevenths.	Diminished	Augmented	Seconds.
	Minor	Major	
	Major	Minor	
Octave.	Perfect	Perfect	Unison.

CHAPTER II.

THE HARMONIC SERIES.

32. Although it would not be correct to say that modern harmony rests solely on natural laws, it is nevertheless true that a certain amount of knowledge of the phenomena of the production of musical sounds is of the utmost assistance to the student in enabling him to understand the derivation of the various chords which form the material of which music is constructed. We shall therefore proceed to explain those laws in so far as it will be necessary to apply them subsequently. What is now to be stated is not in the nature of theory, but of physical fact, and is perfectly familiar to students of natural philosophy.

33. The general law regulating the production of Harmonics may be thus stated :—A sonorous body, such as the string of a piano or violin, vibrates not only throughout its whole length, but in *aliquot parts* of that length, *e.g.*, in halves, thirds, fourths, fifths, &c ; and the musical tones produced by the vibration of the different aliquot parts will always bear the same relation to one another, and to the note produced by the vibration of the whole string. Thus, if the whole string sound the note [music], each half will sound the octave above, viz : [music]. Similarly, if the whole string sounded this last C, the half of this string, (and therefore the quarter of the longer string first taken), will give [music]; the eighth will give the C in the third space of the treble staff, and so on. If the whole string sounds a G, the half will give G the octave above, the quarter the G two octaves above, &c. The division of any string into halves, quarters, eighths, or sixteenths, gives the various upper octaves of the "generator," or "fundamental tone," that is the note produced by the vibration of the whole length of the string.

34. But any string will vibrate not only in halves, quarters, &c., but in any other aliquot parts. If a string vibrate in thirds, it produces the twelfth of the fundamental tone, *i.e.*, the perfect fifth in the second octave. Taking, as before, [music] for the fundamental tone, it will be found that one third of the string gives [music]. Obviously one sixth is half of one third, and, as it has been already seen that the half of a string always gives the octave above the whole, it is clear that the sixth part of the string will give [music] and the twelfth [music].

35. Here it must be said that the *pitch* of a note depends entirely upon the rapidity of its vibration. What we call low notes are produced by much slower vibrations than high notes. An important law of nature as bearing on this point is that *rapidity of vibration varies inversely as the length of the string;* that is to say, that exactly as the length of the string *de*creases, the rapidity of vibration *in*creases. Vibration is a periodic oscillation, as with a pendulum, the difference between a pendulum and a musical string being that the former is free at one end, while the string is fixed at both, and the middle of the string, where the deviation from a position of rest is greatest, corresponds to the bob

of the pendulum. The law of vibration given above can be shown by a very simple experiment. If a ball be fastened to one end of a string, and the string be held by the other end, and the ball allowed to swing like a pendulum, it will move at a rate which will depend on the length of string. Now if the string be held in the middle, everyone knows that the ball will swing much faster—the shorter the string, the more rapid the vibration. And this relation of length to vibration is invariable. Thus in the long string C, that we have spoken of above, for every vibration of the whole string there will be in the same time two vibrations of each half, three of each third, four of each fourth, &c. &c.

36. As the sounds we are explaining are all formed by parts of the whole string, and therefore have more rapid vibrations, and a higher pitch than the generator, they are sometimes called "upper partial tones" or "overtones." A more common name for them, though a less strictly accurate one, is "Harmonics," because those first produced in the series—that is by the vibration of the larger aliquot parts of the string—belong to the harmonies of the generator. Among the higher "upper partials" are many sounds which are unavailable for harmonic purposes; but as the word "harmonics" is convenient, and generally understood, we shall retain it in speaking of these partial tones. When these notes are tabulated in the order in which they are produced, we get what is called the "harmonic series." We shall now give the first part of this series from C. It will be seen that all the even numbers of the series are octaves of some lower number, because (as has been shown above) the half of a string always sounds the octave of a whole string; thus the tenth harmonic will be the octave of the fifth, the fourteenth of the seventh, and so on. (See Diagram on p. 26.)

37. In this diagram the notes produced by the vibration of the aliquot parts of a string are given. The fractions below the notes show the aliquot part of the whole string which produces any given sound, and the "vibration ratios" underneath give the proportion of vibrations in the same time of the fractional parts of the whole string. It will be seen that the harmonics first produced are all consonant to the fundamental tone; but from the seventh note of the series, inclusive, all the *new* notes produced (*i.e.*, all the uneven numbers) are dissonant. The 7th, 11th, 13th, and 14th notes of the series are enclosed in brackets because these harmonics are not exactly in tune in the key of the generator; the 7th (and of course its octave, the 14th), as well as the 13th, being somewhat too flat, and the 11th decidedly too sharp. The 9th and 15th are not "prime numbers," that is to say, they are obtained by multiplying smaller numbers together, $9=3\times3$ and $15=3\times5$. These are therefore called "secondary harmonics;" and we shall have more to say about them directly.

38. A very important use of this series is that it enables us to calculate the ratios of vibration of different musical intervals with accuracy. Thus between numbers 1 and 2 of the series is an interval of an octave; therefore in every octave there are two vibrations of the upper note to one of the lower in the same time. Similarly we get the interval of a perfect fifth between the second and third notes, of a perfect fourth between the third and fourth, &c. Hence we get the following ratios for the principal musical intervals :—

INTERVAL.	NOTES.	RATIO.
Octave	C — C	1 : 2.
Perfect fifth	C — G	2 : 3.
Perfect fourth	G — C	3 : 4.
Major third	C — E	4 : 5.
Minor third	E — G	5 : 6.
Major sixth	G — E	3 : 5.
Minor sixth	E — C	5 : 8.
Major tone	C — D	8 : 9.
Minor tone	D — E	9 : 10.
Major diatonic semitone	B — C	15 : 16.
Minor diatonic semitone	C — D♭	16 : 17.

THE HARMONIC SERIES.

	Generator (Fundamental tone).																				
Notes sounded.							N.B.							N.B.							&c.
Aliquot part of string.		$\frac{1}{2}$	$\frac{1}{3}$	$\frac{1}{4}$	$\frac{1}{5}$	$\frac{1}{6}$	$\frac{1}{7}$	$\frac{1}{8}$	$\frac{1}{9}$	$\frac{1}{10}$	$\frac{1}{11}$	$\frac{1}{12}$	$\frac{1}{13}$	$\frac{1}{14}$	$\frac{1}{15}$	$\frac{1}{16}$	$\frac{1}{17}$	$\frac{1}{18}$	$\frac{1}{19}$	$\frac{1}{20}$	&c.
Vibration ratio.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Interval from the generator (or its upper octaves).			Perfect fifth.		Major third.		Minor seventh.										Minor ninth.		Minor third.		

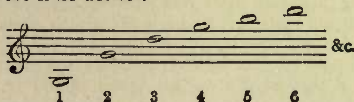
N.B. The 7th Harmonic, and its octave, the 14th, are slightly flatter than the true minor seventh of the generator, but so little as not to disqualify them for harmonic purposes. See § 43.

The distinction between the major and minor tones and semitones, though it exists, is of no practical importance in connection with harmony; it is given in the above list for the sake of completeness.

39. The student must not suppose that the harmonic series terminates at the 20th note. It might be carried much further; but no prime numbers above 20 are available for harmonic purposes.

40. It has been shown that upper partial tones can be obtained by causing a string to vibrate in aliquot parts. As a matter of fact many of these tones *are* so produced, together with the fundamental tone when a string is struck. If the student will strike one of the bass notes of a piano, and listen carefully, he will hear first the fundamental tone, then, more faintly, the octave, twelfth, double octave, and, under favourable circumstances, even the major third above this. What takes place is that the string, as soon as it begins to vibrate, divides of itself into its aliquot parts, each giving the note proper to itself, and related, as shown above, to the fundamental tone. But the higher harmonics are either not produced at all, or are so faint that the ear cannot distinguish them without artificial aid. It has been shown by the researches of Helmholtz that a good musical tone is a *compound* tone—that is, one containing some upper partials together with its fundamental tone—and that the different quality of various instruments depends on the presence in varying strengths of these upper partials.

41. Now we proceed one step further. It will be evident that just as the fundamental note C generates its series of harmonics, each of these harmonics can itself become the generator of a series. If we take the third note (G) in the series of C—the first new note produced—as a generator, it will give a series of upper partials bearing the same ratio to their fundamental tone, and being at the same distance from it, as the series with which we are already acquainted. It will not be needful to give the whole series up to the 20th note, as we did from C; it will suffice to give the first few notes, and the student can add more if he desires.



By comparing this series with the series of harmonics of C, it will be seen that the six notes here given are all included in that series, where they will be found as numbers 3, 6, 9, 12, 15, and 18—that is, numbers 1 to 6 multiplied by 3. For G is the third harmonic of C, and all the harmonics of G are therefore *harmonics of a harmonic* of C. This is what we term "secondary harmonics." Thus D is the third harmonic of the third harmonic of C, and $3 \times 3 = 9$. Similarly B is the 15th harmonic of C, being the 5th of G; and this note might also be derived as the third harmonic of E, the fifth note in the series of C. Secondary harmonics play a very important part in the formation of many chords, and we shall meet with many others besides those here given as we proceed. For the present an explanation of their nature will suffice.

42. Let us turn back once more to the harmonic series given in § 36. The student will see that as we ascend, the harmonics fall continually closer and closer together. It has been shown that the octaves of the fundamental tone are numbers 2, 4, 8, 16, 32, &c., of the series. In the lowest octave, 1—2, there is no intermediate harmonic, in the second octave, 2—4, there is one, in the octave 4—8 there are three, and in the octave 8—16 seven intermediate harmonics; and these not at equal distances, but constantly drawing nearer and nearer. Evidently in the fifth octave, 16—32, there must be fifteen intermediate harmonics, or more notes than can be used in modern music, which contains only twelve notes to the octave.* For this reason it is

* The notes of the series next following 20 will illustrate this. No. 21 of the series will evidently be the twelfth above No. 7, because $21 = 3 \times 7$. Therefore 21 will be F, slightly too

necessary to make a selection from the harmonics offered us by nature. As a matter of fact different selections have been made at different periods, and even at the present time the music of less artistically advanced nations contains fewer notes in a key, scales of only five notes being found among the Chinese, Malays, and other Oriental races; while, on the other hand, in Arabic and Persian music the octave is divided into 16 intervals. From this we see, in the words of Helmholtz, that "the system of Scales, Modes, and Harmonic Tissues does not rest solely upon unalterable natural laws, but is at least partly also the result of æsthetical principles, which have already changed, and will still further change with the progressive development of humanity" (*Sensations of Tone*, p. 358).

43. The next question that presents itself is, what considerations are to guide us in making our selections from the harmonic series? In the lower octaves, the partial tones produced are so few in number that we have no choice; we take them all up to the 8th harmonic. We thus obtain all the consonant intervals (as will be seen by referring to the ratios in § 38) and one dissonance, the minor seventh, formed by the seventh note of the series. This seventh, often called the "harmonic minor seventh" is, as already said, slightly flat, being a little more than a true major tone below the eighth note of the series; for its ratio is 7 : 8, while the major tone is 8 : 9. The difference of pitch, however, is so small, being only $\frac{1}{64}$, that it may be disregarded. On this point we are supported by the authority of Helmholtz, who says "the minor seventh approaches so nearly to the ratio 7 : 4 [which is, of course, the same as 7 : 8, transposing the upper note an octave], that it may in any case pass as the seventh partial tone of the compound." (*Sensations of Tone*, p. 539.)*

44. Thus far then, our path is clear; but in the next octave, containing the upper partials between 8 and 16, we meet with two notes, 11 and 13, which are perceptibly out of tune with the other notes which we already have. Our object is to get as many consonances as possible into the key for the sake of making our chords, as will be shown in the next chapter. Now the 11th harmonic, F, is distinctly too sharp to be used as a perfect fourth to C; for the ratio is 8 : 11, while that of the perfect fourth (§ 38) is 3 : 4. Here the difference in pitch is much more considerable than in the case of the 7th harmonic, being $\frac{1}{32}$; in fact, the 11th harmonic is slightly nearer to F♯ than to F♮. For this reason this harmonic is not available for the harmonies of the key. But here the secondary harmonics spoken of above come to our aid. In the foot-note to § 42, it was shown that in the fifth octave there were two F's, Nos. 21 and 22. The latter, being the octave of 11, will evidently be equally out of tune, and therefore unavailable; but No. 21 being the twelfth (or, which is harmonically the same thing (§ 20), the perfect fifth) of No. 7, a note which, as we have already seen is admissible, will equally be admissible, and we here get an F differing from a perfect fourth only by $\frac{1}{64}$, a fraction which we can disregard.† Similarly A, the 13th harmonic, has with C the ratio 8 : 13, which is $\frac{1}{40}$ flatter than the true major 6th, 3 : 5 (§ 38). But by taking the secondary harmonic, 27, of the next octave instead of 26, (*see* foot-note, § 42) we obtain the ratio 16 : 27, which differs from 3 : 5 only by $\frac{1}{80}$. This note is obviously much better in tune, therefore in making our selection we reject 11 and 13, because we can find better notes

flat, because B♭ is slightly too flat. But 22 will be the octave of 11 (11 × 2 = 22), which gives another F, somewhat too sharp. Similarly 26 and 27 will give two different pitches for A, as the student can easily work out for himself. In these cases it is clear that both notes cannot be available in the same key.

* Helmholtz is speaking of the chord of the dominant 7th, containing the interval G to F. As the law is of general application the specific reference to these two notes is omitted in the quotation.

† The reason why we do not take F as the perfect fifth *below* C will be explained in the next chapter (§ 70).

in their place. These secondary harmonics, it will be noticed, are compounded of primes already in the series.

$$21 = 3 \times 7$$
$$27 = 3 \times 3 \times 3.$$

The latter is, strictly speaking, a *tertiary* harmonic; but it will be seen that it is ultimately derived from the same fundamental tone as the other notes.

45. We have therefore only two more prime numbers, 17 and 19, to consider. The former of these, giving the minor ninth to the generator, is one of the most important notes of the series for its employment in harmony; the 19th harmonic, which gives the minor third, is only used in one combination, which will be dealt with later. (*See* Chapter VII.) When in the next chapter we build up the chords of a key, the only primary upper partial tones we shall require to use will be

No. 3 giving the perfect fifth to the generator.
,, 5 ,, ,, major third ,, ,,
,, 7 ,, ,, minor seventh ,, ,,
,, 17 ,, ,, minor ninth ,, ,,

The notes that we may require which are not among these primary harmonics will be furnished by secondary harmonics.

Note to Chapter II.

The calculation of harmonic ratios.

46. It has not been thought expedient to perplex the student of this chapter by all the calculations proving the correctness of the ratios given in §§ 43, 44; but, as the ability to calculate such ratios with accuracy will be found very valuable to those who wish to understand the subject thoroughly, a few general rules will here be given.

47. I. Every ratio can be expressed by a vulgar fraction, the vibration number of the higher of the two notes being the numerator, and that of the lower the denominator. Thus the ratios given in § 38 might be written as $\frac{2}{1}$, $\frac{3}{2}$, $\frac{4}{3}$, $\frac{5}{4}$, &c. *To find the difference of the ratios of two intervals, reduce the fractions which express them to a common numerator if the pitch of the higher note of each is to be the same, and to a common denominator if the pitch of the lower note of each is to be the same.* To illustrate this, let us take the ratios of the 7th, 11th and 13th harmonics mentioned above as being not strictly in tune in the key, and compare them with the correct intervals to which they approximate. The harmonic 7th C : B♭, as will be seen from the table of the harmonic series in § 36, has the ratio $\frac{7}{4}$. But a true minor 7th will be found between D and the C above it, the ratio being $\frac{16}{9}$. To compare these two ratios

$$\frac{7}{4} \text{ and } \frac{16}{9}$$

we reduce them to a common denominator, by multiplying the two denominators together for a new denominator, and each denominator by the opposite numerator for a new numerator,

$$4 \times 9 = 36$$
$$9 \times 7 = 63$$
$$4 \times 16 = 64$$

The fractions will therefore be

$$\frac{63}{36} \text{ and } \frac{64}{36}$$

that is to say, for every 63 vibrations of the harmonic 7th there will be in the same time 64 of the true minor 7th, proving what was said in § 43, that the harmonic 7th is $\frac{1}{64}$ too flat.

48. As further illustrations of this rule we will take the 11th and 13th. The former has to the tonic the ratio $\frac{11}{8}$, while the perfect 4th has $\frac{4}{3}$

$$\frac{11}{8} = \frac{33}{24} \qquad \frac{4}{3} = \frac{32}{24}$$

Therefore the 11th harmonic is $\frac{1}{32}$ larger (or sharper) than the perfect 4th. The 13th again has the ratio $\frac{13}{8}$, while the major sixth has the ratio $\frac{5}{3}$. Reducing as before, to a common denominator,

$$\frac{13}{8} = \frac{39}{24} \qquad \frac{5}{3} = \frac{40}{24}$$

Therefore the 13th is $\frac{1}{40}$ too flat for a true major sixth. Lastly, we stated that the 27th harmonic was only $\frac{1}{80}$ too sharp for a true major 6th. This can be proved in the same way. The 27th harmonic of any series must lie between the two octaves of the fundamental tone 16 and 32; above the former and below the latter. Its ratio to the fundamental tone below must be therefore $\frac{27}{16}$, and, as we know, the major 6th has the ratio $\frac{5}{3}$.

$$\frac{27}{16} = \frac{81}{48} \qquad \frac{5}{3} = \frac{80}{48}$$

Therefore the 27th harmonic is $\frac{1}{80}$ sharper than a true major 6th.

49. The above examples will, it is hoped, sufficiently explain the method of calculating these ratios. A still simpler method of comparing these is to *multiply each numerator by the other denominator.* This, however, is not sufficient by itself to enable the student to tell by how much one of the two intervals is the flatter or sharper.

50. *To find the number of any note higher than the* 20*th in the harmonic series.*—As no primary harmonics above the 20th are employed in harmony (§ 39), those which are so employed must be secondary, *i.e.*, primary harmonics of one of the harmonics of the generator. All that is needed is to know which intermediate note to select of which the note required is a primary harmonic. The following simple rules will guide the student :—

Rule 1. If the note of which the number is desired be *in the major scale of its generator*, find the vibration number of the perfect fifth below it, and multiply by 3. For example : A♮ is in the major scale of C. The perfect fifth below A is D, the 9th harmonic of C ; therefore A is 9 × 3 = 27th harmonic.

Rule 2. If the note desired be *sharper than a note of the major scale*, take the vibration number of the major third below it, and multiply by 5. For example : to find G♯ in the series from C. Being sharper than G♮, the note of the major scale, we take E, the major third below it. E is the 5th harmonic of C ; therefore G♯ is the 5 × 5 = the 25th harmonic.

Rule 3. If the note desired be *flatter than a note of the major scale*, take the vibration number of the minor 9th below it, and multiply by 17. For example: to find A♭ from C. The minor ninth below A♭ is G, the third harmonic of C; therefore A♭ is 3 × 17 = the 51st harmonic.

51. If the major third or minor ninth below the required note be not found among the first twenty harmonics, find the vibration number of the intermediate note first. For instance, to find A♯ from C. The major third below A♯ is F♯, which is not among the first twenty harmonics. As F♯ is sharper than a note of the major scale, we take its major third below, *viz.*, D, the 9th harmonic of C. F♯ is therefore 9 × 5 = the 45th harmonic, and A♯ is 5 × 45 = the 225th harmonic from C. It is seldom needful to calculate such high ratios as these.

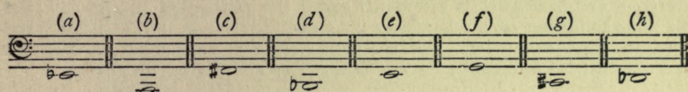
52. There is one interval yet to be mentioned, which, as will be seen in the next chapter, is of considerable importance. This is the extremely small interval between two notes which are "enharmonics" of one another, that is to say two notes represented by the same sound on instruments having only twelve sounds in the octave, *e.g.*, G♯ and A♭. It is often supposed that G♯ is the higher of these two notes; but as a matter of fact it is the lower. This will be easily seen by deriving both notes from the generator C. We showed just now that G♯ was the 25th harmonic of C (§ 50), and also that A♭ was the 51st harmonic (§ 51). Obviously the octave above the 25th harmonic will be the 50th ; therefore in the series from C, G♯ = 50, and A♭ = 51, or the

next higher harmonic. These two notes are never used *in the same key*, for no interval smaller than a semitone is used in musical composition ; but, as will be seen later, the two notes are often treated as identical, and the one is substituted for the other for the purposes of modulation. The small interval between the two notes is called the "enharmonic diesis," from a Greek word meaning *division*.*

53. For the sake of uniformity we have in this chapter reckoned all the harmonics from the same generator, C. The student must not forget that a similar series can be formed from any other note ; and it will be well for him to accustom himself to work out harmonic calculations such as those here given from other generators. The exercises now to be given will be of material assistance to him in this respect.

Exercises to Chapter II.

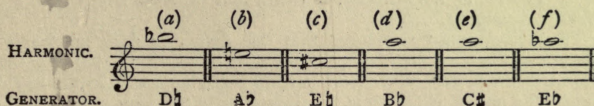
(1.) Write the Harmonic Series up to No. 20 from the following generators, distinguishing the secondary harmonics by a ×, and enclosing in brackets those harmonics which are out of tune.



(2) Find the ratio of the interval of the augmented sixth deriving both the notes of the interval from D as a generator.

(3.) F♮ being the ninth harmonic of E♭, compare the pitch of the note B♭, when derived as the perfect fifth of E♭, with the pitch of the same note derived through F, (*a*) as a primary harmonic, (*b*) as a secondary harmonic.

(4.) Give the number of each of the following notes in the harmonic series of the generator named below it :—



(Note.—Exercises 2 to 4, being somewhat difficult, should not be attempted by the student until the contents of this chapter are thoroughly mastered.)

* The enharmonic diesis is usually calculated in rather a different way from that given above ; viz. : by reckoning three major thirds one above another, *e.g.*,

$$\frac{E}{C} \times \frac{G\sharp}{E} \times \frac{B\sharp}{G\sharp}$$

$$\frac{5}{4} \times \frac{5}{4} \times \frac{5}{4} = \frac{125}{64}$$

As the octave $\frac{C}{C}$ will clearly be $\frac{128}{64}$, it follows that the ratio $\frac{B\sharp}{C}$ will be $\frac{125}{128}$. This is the ratio usually given, and it will be found to be almost identical with the simpler ratio $\frac{50}{51}$ given in the text.

CHAPTER III.

KEY, OR TONALITY.

54. One of the first things which it is necessary that the student should understand is what is meant when we speak of the *Key* of a piece of music. In order that music should produce a satisfactory effect, it is necessary that the notes, whether taken singly, as in a melody, or combined, as in harmony, should have some definite and clearly recognisable relation to one another. For example, if the first half of "God save the Queen" be played on the piano—



everyone can hear what is commonly called the *tune*—that is, can feel that the notes following each other have some definite relation to the first and last note, and to one another. But if we take the very same notes on the staff, and alter several of them by the addition of flats and sharps, thus—

we not only distort the melody beyond recognition, but it ceases to be *music* at all; for the notes as they follow one another have no connection, no common bond of union, so to speak. In other words, they are in no *key*.

55. From the very infancy of music, the necessity for the relationship of notes to one another has always been felt, though the degree of relationship and its nature have differed as the art has progressed. In its modern sense Key may be thus defined :—

A collection of twelve notes within the compass of an octave, of which the first is called the TONIC, or KEY-NOTE, to which note the other eleven bear a fixed and definite relationship.

56. The student must remember that this definition does not imply that all music in one key must lie within the compass of an octave, but only that all the notes used in one key *can be found* within that compass. In the key of C, for instance, the note C is the tonic, but it is equally the tonic whether it be the lowest or the highest C on the keyboard, or any C lying between the two.

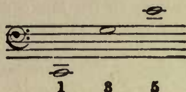
57. The fundamental principle for the development of modern music cannot be better stated than in the words of Helmholtz (*Sensations of Tone*, p. 383) :—"The whole mass of tones and the connection of harmonies must stand in a close and always distinctly perceptible relationship to some arbitrarily selected tonic, and the mass of tone which forms the whole composition must be developed from this tonic, and must finally return to it."

58. A combination of more than two notes in the same key, arranged on certain fixed principles now to be explained, is called a CHORD. Every chord is made by placing not fewer than three notes one above another at an interval of a third, either major or minor. The lowest note, upon which the chord is built, is called its ROOT.* If only two thirds are placed one above

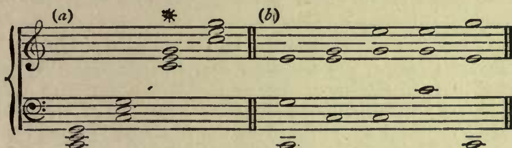
* Much trouble is sometimes caused to students from the word *Root* being used in two senses by theorists—as the lowest note of any combination of thirds, and also as the fundamental tone in the key from which the combination is harmonically derived. In order to avoid confusion, the word *Root* will in this book always be employed in the former sense, and the note from which the combination is ultimately derived will be called its *Generator*. This distinction will become quite clear as we proceed.

another, making in all three notes, the chord is called a *Triad.* It has been said that the whole contents of a key are developed from the tonic, or key-note. We therefore begin by making a chord on the tonic, and shall choose the key of C major, as requiring no flats or sharps.

59. If we take C as a root, and put a third (major or minor) above it, that note will be either E♮ or E♭. Another third above E♮ will give either G♮ or G♯, and above E♭ we shall get either G♭ or G♮. How are we to know which of these various notes to select? Here nature herself is our guide. We have already seen (§ 36) that the perfect fifth—in this case G♮—and the major third (E♮) are the first new sounds generated from C, the octaves being merely repetitions of the same sound at a different pitch. In nature the fifth is produced first, and then the third—

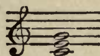


but as a chord is made by placing thirds one above another, we re-arrange these notes. We can place them at any pitch, so long as their relative positions to the root are not disturbed, *e.g.* :—



At (*a*) will be seen the chord of C in its closest position. The student will notice that the chord marked ✱ contains the 4th, 5th, and 6th notes of the harmonic series given in § 36. All these positions (as will be shown later) are not equally good; but the chord is the same in each instance. At (*b*) will be seen wider positions of the same chord. It will be remembered that the interval from C to G is always a perfect fifth, and from C to E a major third, no matter how many octaves apart these notes may be (§ 20). So long therefore as G and E are both placed *above* C, the chord is still a common chord, and is called, after its root, the chord of C. But if either E or G were placed *below* C, we should get inversions of the chord, which will be spoken of later.

60. Now let us examine this chord of C major a little closer.



It will be seen that the two 3rds of which it is composed are not of the same size. This is because *the fifth of every common chord must be a perfect fifth from the root.* If we place two major thirds one above another we shall get the combination , and if we take, instead of two major, two minor thirds we get . Both these chords will be met with later, but neither of them is a *common chord.* Hence we get another rule to help us: *a common chord is composed of a major and a minor third placed one above another.* If, as in the present case, the major third is the lower, *i.e.*, next above the root, the chord is called a major chord. If the minor third is the lower, the chord is called a minor chord. The terms "major" and "minor," as applied to keys indicate the nature of the chord on the tonic.

C

Formerly the keys that we now call C major and C minor were described as "the key of C with the greater third" and "the key of C with the lesser third." At present we are concerned only with the major key, in which the chord of the tonic is always major.

61. The student will notice that in this chord of C major, the note C is not only the *root*—that is, the lowest of the three notes arranged in thirds—but also the *generator*—that is, the note of which the other two, E and G, are upper partials. As the whole of our key is developed from the upper partials (or harmonics) of the tonic, we have to look to our harmonic series (§ 36) to find the next third above G. Shall we take B♭ or B♮? We select B♭ because it is the next new tone generated from C, as its 7th harmonic; for this reason it takes precedence of B♮, which is not found till the 15th note of the harmonic series, where, as was seen in the last chapter, it is the fifth harmonic of G, and is therefore only a secondary harmonic of C. Thus far our "fundamental chord"—that is, a chord composed of the harmonics of its fundamental tone, or generator—is always the same as to the intervals it contains, these being invariably a *major third*, *perfect fifth*, *and minor seventh* from the fundamental tone. These intervals cannot be too clearly and strongly impressed on the mind of the student.

62. When we come to add another third above the 7th, a choice offers itself. We can either take a minor 3rd (D♭, the 17th harmonic) or a major 3rd (D♮, the ninth harmonic). If both these notes were *primary* harmonics, we should have no hesitation in choosing D♮, because the earlier the harmonics are produced, the stronger they naturally are, and therefore the more claim they have to a place in the key. But we saw in the last chapter (§ 37) that D♮ was a *secondary* harmonic, being the third harmonic of G, and its claims may therefore be regarded as balanced by the fact that D♭, though produced much higher up the series, is a *primary* harmonic, and springs out of its fundamental tone without the intervention of any other note. We can therefore take either D♭ or D♮—the minor or the major ninth from C—alternatively; but we cannot take both in the same chord. This would produce a discord technically known as "false relation," by which is here meant that two notes a chromatic semitone distant from one another cannot be used in the same chord.

63. Let us now look at this chord as far as we have made it: (*a*) (*b*)

The first chord (*a*) is the chord of the *minor ninth*, consisting of the 5th, 3rd, 7th, and 17th harmonics (all *primary*) of the generator. The second chord (*b*) is the chord of the *major ninth*, composed, like that of the minor ninth, of the 5th, 3rd, and 7th harmonics of the generator (the *tonic*), but also containing a secondary harmonic—D♮, the third harmonic of the dominant. The reason why a harmonic of the dominant, rather than of any other note, is taken, is because the dominant is the first new note generated from the tonic. In the chord (*b*) the primary harmonics of the generator are printed as semibreves, and a crotchet head (●) is used to indicate a secondary harmonic.*

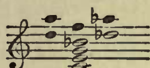
64. It is evident that if we continue to build up our chord by thirds, the next note above D will be an F, and the next note above F will be an A. But it was seen in the last chapter (§ 44) that the primary harmonics, F and and A (the 11th and 13th upper partials of C), were both too much out of tune to be available in the chords of the key. It was also shown that the secondary harmonics, derived as primes from G, were sufficiently in tune to answer our purpose. Therefore, now that we have once begun (with the major 9th) to employ secondary harmonics, we will continue with them. For the interval of

* It has been already said in § 40 that these higher harmonics can only be heard, if at all, by artificial aid. It must therefore be clearly understood that these ninths are used by composers not for physical but for æsthetic reasons (*see* the quotation from Helmholtz in § 42). The explanation of their harmonic origin is not on that account the less useful, as showing the relation to one another of the various notes in a key.

the 11th we take F♮, the 7th harmonic of G, and not F♯, the 15th, for the same reason for which we took B♭ and not B♮ for the seventh of C. The thirteenth of the tonic, A, is evidently the ninth of the dominant, and, like the interval of the 9th from the tonic, it can be either minor or major, the former (A♭) being the 17th harmonic of the dominant, and the latter (A♮) being a secondary harmonic of the dominant, and therefore a *tertiary* harmonic of the tonic.

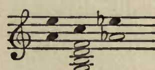
65. The next third above A will clearly be C. It is impossible to have C♯ or C♭, because it would make "false relation" with the generator. The note must therefore be C natural, and the series of thirds will begin over again. For this reason, the thirteenth is the highest interval that can be placed over any fundamental tone.

66. We have now completed the tonic chord by building up over its fundamental tone as many thirds as can be put one on another. We now give the complete chord, putting the alternative major and minor 9ths and 13ths side by side, and distinguishing primary and secondary harmonics by white and black heads.



It will be well to remember that every interval of this chord up to and including the minor ninth is made by a primary harmonic of the fundamental tone, and that all the intervals above the minor ninth are formed by secondary harmonics. In every fundamental chord (*see* § 61), the primary harmonics come in the same order—5, 3, 7, 17; and the secondary harmonics do the same, excepting that the first of these notes—the 5th harmonic of the upper fundamental tone—cannot be used, because it would make "false relation" with the 7th primary harmonic, which is already in the chord. It was shown in § 61 that in this chord of C which we have been building up, B♭, the 7th harmonic of C, took precedence of B♮, the 5th harmonic of G; and B♭ being already in the chord B♮ is permanently excluded from it.

67. Having exhausted the available harmonic resources of C as a fundamental tone, we must look elsewhere for the materials to complete our key. It has been already said that the whole key springs out of its tonic; therefore we continue with the harmonics of the dominant, G, this being the first new note generated from the fundamental tone C, and therefore the nearest related to C. Evidently by taking G as a generator we shall obtain a chord containing precisely the same intervals from G as those contained in the chord of C, which we have already constructed. It is needless to go again step by step through the process of building up this chord, as we did that of C, because all the reasonings and all the results will be precisely similar. We shall find, as before, that all the intervals up to the minor 9th will be primary harmonics of G, and all above the minor 9th will be secondary harmonics, that is to say, harmonics of D, the fifth of G. The whole of the dominant chord will therefore be this—

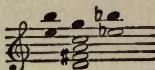


The alternative 9ths and 13ths are, as before, put side by side.

68. It will be seen that several of the notes of this chord have been already met with in the tonic chord as secondary harmonics. There are, in fact, only two notes, B♮ and E♭, which are absolutely new; but it will be shown later, when the subject of the treatment of these chords is dealt with, that the effect of notes which look the same on paper may differ entirely according to their surroundings.

69. In § 55, a key was defined as "a collection of *twelve* notes within the compass of an octave." If the student will examine the complete chords of the tonic and dominant which we have been constructing, he will see that we have

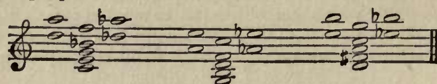
as yet only eleven. We shall have to take some other fundamental tone to obtain the additional note. Just as we took the dominant after the tonic, as the first new note springing from that generator, so we now take the *supertonic*, the fifth of the dominant, for the same reason. Some of the primary harmonics of the supertonic have already been met with as secondary harmonics in the dominant chord, just as the harmonics of the dominant were seen in the upper part of the tonic chord. As the supertonic chord will be constructed in precisely the same manner as the tonic and dominant chords, it is clear that it will contain exactly the same intervals.



Here we find one note (F♯) which was not in either of the previously constructed chords, and which completes the twelve notes required for the material of the key. We cannot take any other fundamental tone than these three in a key without getting *more* than twelve notes in the key. For since we have only twelve semitones in the octave, and these are already given from one or other of the three generators we have taken, it is clear that any new note introduced into the key must be a note distant by less than a semitone from some note already in the key. If, for example, we take A, the 5th of D, as a generator, its major third will be C♯. But we have already D♭ in the key, as the minor ninth of C; and between C♯ and D♭ is the "enharmonic diesis" (§ 52). This interval, being smaller than a semitone, cannot be used. The general rule may be thus stated : *No two notes which are enharmonics of one another can both be used in the chords of the same key.** Hence, though we can and do employ some of the harmonics of A as secondary harmonics of the supertonic, D, A cannot be employed as a generator in the key; for it would be impossible to build a fundamental chord upon it without introducing the major 3rd, C♯, which is excluded by the D♭ already in the key. In the same way E, as a generator, would give G♯, the enharmonic of A♭, one of the primary harmonics of G. This is the reason why we take D as the next generator after G, although E, as the 5th harmonic, is derived from the tonic much earlier than D, the 9th harmonic. On the other hand, if we take F, the subdominant, as a generator, its minor ninth, G♭, is the enharmonic of F♯, the major third of D. It is therefore obviously impossible to continue the series of generators by fifths any further, either upwards or downwards.

70. Here it may naturally be asked, Why not take the fifth below the tonic as one of the fundamental tones in the key, instead of the fifth above the dominant, thus having the tonic as a centre, with the dominant a fifth above it, and the subdominant a fifth below it? The reason will be more clearly seen when we come later to consider the different character of tonic and dominant harmony (*see* Chapter IX.); for the present it will suffice to say that the subdominant would be the fundamental tone out of which the tonic springs as its third harmonic; that is to say, the tonic has the same relation to the subdominant as the dominant has to the tonic; and if the subdominant be taken as a generator in the key, the tonic at once sinks into a subordinate position, as a note generated out of one of the other notes in the key, instead of being the source whence the whole material of the key is derived.

71. Let us now collect and endeavour to arrange in order the materials of our key of C major, as we have obtained it from the three generators C, G, and D. For this purpose we exhibit the three fundamental chords side by side.

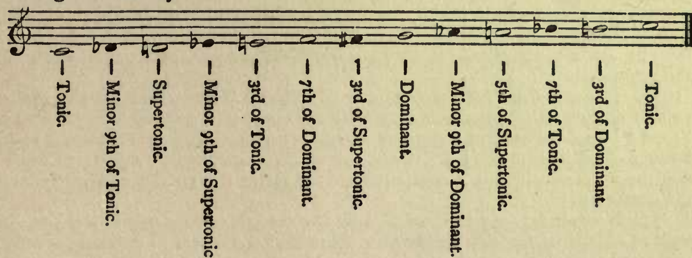


* It will be seen later that the apparent violations of this rule by composers are merely examples of convenient notation (*see* § 341).

It will be noticed that the dominant chord is written a fourth below the tonic, instead of a fifth above. This is simply for convenience; the octave in which a chord is taken makes no difference in its origin. It must also be observed that the higher notes, C, E, G, and B♭ of the supertonic chord all differ slightly in pitch from the corresponding notes of the tonic chord, when taken in the same octave. By the help of the rules given in § 47, the student can easily ascertain the amount of the difference, which is in every case so small that we can afford to disregard it, the two C's, E's, &c., being for all practical purposes identical.

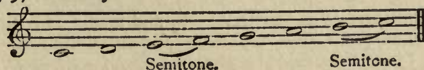
72. If we examine the twelve notes which form the three chords given above, it will be seen that seven of them have no accidentals before them, while, of the other five, four are lowered a semitone by a flat, and the fifth is raised a semitone by a sharp. The seven notes having no accidentals are called *diatonic* notes, by which is here meant notes in accordance with the signature of the key; the five which have accidentals are called *chromatic* notes, *i.e.*, *colouring* notes, which give the colour, the light and shade to the key. As every key is generated out of its tonic in the same way as the key of C, it follows that *every key contains seven diatonic and five chromatic notes.*

73. We will now arrange the twelve notes which we have obtained in the key of C in their order of pitch, beginning with the tonic itself—C. The note nearest above C is evidently D♭, and we have more than once said that the octave in which a note is placed does not affect its nature. So that although D♭ is the minor ninth and D♮ the major ninth of C in chord-building, yet, as these notes can be found within the limit of an octave from C (see § 56), we place them at a distance of a semitone and a tone respectively from the tonic. We now proceed to give the twelve notes in their regular order, using black heads for the chromatic notes, and placing under each note the explanation of its origin in the key.



It will be seen that all these notes are either fundamental tones, or primary harmonics of a fundamental tone, as stated in § 45. The scale just given is called the *chromatic* scale of C. It consists entirely of semitones; and, just as the key itself contains seven diatonic and five chromatic notes, so the chromatic scale contains seven diatonic and five chromatic semitones.

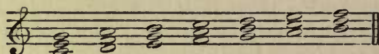
74. If we omit from the above scale all the chromatic notes, we get the diatonic scale (§ 9) of C major.



This scale consists of a succession of tones and diatonic semitones—five of the former and two of the latter. The semitones are found between the 3rd and 4th and the 7th and 8th degrees of the scale; and the position of the semitones, as will be seen later when we come to the minor key, determines the nature of the scale and of the key.*

* As every tone consists of a diatonic and a chromatic semitone, (§ 7), it is clear that the five tones together contain five diatonic and five chromatic semitones. Adding the two diatonic semitones of the major scale, we get a total of seven diatonic and five chromatic semitones, as stated above.

75. We will now turn back to the three fundamental chords given in § 71. It is extremely rare to find these chords in their complete shape, partly because some of the notes form harsh dissonances with one another—*e.g.*, the 11th with the 3rd, or the minor 13th with the fifth—but partly also because most music is written in harmony of four parts, and as a complete chord of the 13th contains seven notes it is clear that at least three of these must be omitted. But just as we have already shown that all the notes of the key are to be found in these chords, we will now show that all the harmonies of the key are contained in them. As the nature of chromatic chords in the key (that is to say, chords containing some of the chromatic notes) has not yet been explained, we will speak at present only of the diatonic chords. The student will see that without using any of the five chromatic notes in the key, we shall find among the fundamental harmonies a common chord on every degree of the scale excepting the leading note, which bears a triad which we will explain directly. It will be found that each common chord is derived from the harmonics of one of the three generators.



The *tonic chord* (C, E, G) consists of the fundamental tone, major third, and fifth of the tonic.

The *supertonic chord* (D, F, A) is the fifth, seventh, and major ninth of the dominant.

The *mediant chord* (E, G, B) is the major thirteenth, fundamental tone, and major third of the dominant.

The *subdominant chord* (F, A, C) is the seventh, major ninth, and eleventh of the dominant.

The *dominant chord* (G, B, D) is the fundamental tone, major third, and fifth of the dominant.

The *submediant chord* (A, C, E) is the fifth, seventh, and major ninth of the supertonic.

76. The *chord on the leading note* (B, D, F) differs from all the other chords of this series inasmuch as it does not contain a perfect fifth from the root.* It is therefore not a *common chord.* (§ 60.) The interval from B to F being a diminished fifth (§ 31), the chord B, D, F is called a *diminished triad*, and the notes of which it is composed are the major third, fifth, and seventh of the dominant.

77. It would be easy to show that all the chromatic concords in the key, as well as all the discords, whether diatonic or chromatic, are to be found among the fundamental chords of which we have been speaking. It will, however, be more convenient to defer this until we come to deal with these subjects. From what has been already said, it will be readily understood that as no key can contain more than twelve notes, from which all the harmonies of that key are made, and as all these twelve notes are derived from one of the three generators of the key, the tonic, dominant, or supertonic, all the harmonies must also be derived from one of these three generators. It has further been seen that both the dominant and supertonic are ultimately derived from the tonic. It is therefore from the tonic that the whole material of the key is developed; and we have thus established the correctness of the definition of *Key* given in § 55, and justified the principle which we quoted from Helmholtz in § 57.

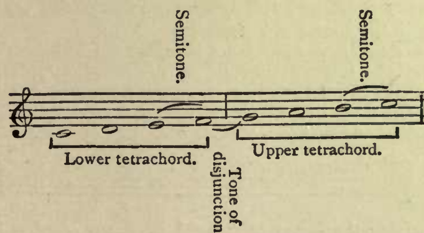
78. Hitherto we have in this chapter spoken only of one key—that of C; but as the selection of the tonic is entirely arbitrary, any other note than C may be taken as a key-note. The other notes of the key will bear the same relation to their tonic, whatever that tonic may be, which the notes in the key

* As we have carefully distinguished between the terms "root" and "generator" (§ 58, *note*) there can be no objection to applying the word "root" here to the note B, though it does not bear a perfect fifth above it.

of C bear to the tonic C. We selected C to work with at first because in this alone, of all the major keys, there are no flats or sharps in the diatonic scale, and therefore in the key-signature. We now proceed to show how in keys with any other tonic than C sharps or flats become necessary.

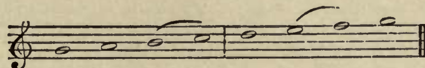
79. In § 74 we deduced our diatonic scale from the chords of the key. If we take another tonic, we shall evidently get a similar scale as regards the order of intervals, that is to say, the semitones will come between the 3rd and 4th and the 7th and 8th degrees of the scale. When all the notes are naturals, the semitones, as we have seen, lie between E and F and between B and C. But if any other tonic than C is taken, E and F will no longer be the 3rd and 4th, and B and C no longer the 7th and 8th degrees of the scale; therefore, if the notes be left unaltered, the semitones will come in the wrong places. As a matter of fact, in the older music such scales were used; and the difference between one key and another was a difference in the place of the semitones. Each "mode," as it was termed, had a different order of tones and semitones.* In modern music only two "modes," the major and minor, are employed; and the difference between one major key and another, or one minor key and another, is solely a difference of pitch.

80. If we examine the diatonic major scale of eight notes beginning from the tonic, we shall see that it can be divided into two sections of four notes each, and that these two sections are in their construction precisely similar, each containing the interval of a semitone between the two upper notes, and a tone between the other notes. A series of four notes thus arranged is called a *Tetrachord*—a Greek word signifying four strings; and the scale consists of two such tetrachords placed one above the other with the interval of a tone between the highest note of the lower tetrachord, and the lowest note of the upper. This tone, separating the two tetrachords, is called the "tone of disjunction."



It is important to notice that the lower tetrachord begins with the tonic, and the upper with the dominant—the first new note, as we have several times said, springing out of the tonic. They may therefore also be called the tonic and dominant tetrachords.

81. If we now take G as a tonic, or in other words make the upper tetrachord of C the lower tetrachord of a new scale, we shall find that if we leave all the notes unaltered the upper tetrachord will have its semitone in the wrong place—



Here the semitone is between the second and third notes of the upper tetrachord, instead of between the third and fourth. To correct this F must be raised to F♯; and we now have a semitone between the "leading note"

* If the student will play a scale on the piano, *using only white keys*, and commencing on other notes than C, he will obtain the various forms of the old ecclesiastical scales.

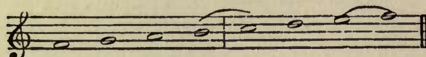
(§ 13) and the tonic, as in the key of C.* It is important to notice that the sharpened note is the leading note of the new key, and that the sharp, because it belongs to the key, is marked once for all in the key-signature.

82. If we continue to take the upper tetrachord of each key as we obtain it as the lower tetrachord of a new key—*i.e.*, if we make each dominant into a new tonic, we shall clearly have to introduce a fresh sharp for each new leading note. The student is recommended to work out all the scales rising by fifths after the pattern given above. The result will be the following :—

Tonic.	*Signature.*
C	None.
G	F♯.
D	F♯, C♯.
A	F♯, C♯, G♯.
E	F♯, C♯, G♯, D♯.
B	F♯, C♯, G♯, D♯, A♯.
F♯.	F♯, C♯, G♯, D♯, A♯, E♯.
C♯	F♯, C♯, G♯, D♯, A♯, E♯, B♯.

83. It would be possible to continue this series, of which the next tonic would be G♯; but as this would involve the use of a double-sharp, it is more convenient instead of G♯ to take its "enharmonic" (§ 52), A♭, which for all practical purposes is the same note. We never therefore find a piece of music written with the key of G♯ major as a signature, though the key is occasionally used incidentally in the course of a piece.†

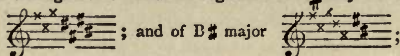
84. All these sharp keys have been obtained by making the upper tetrachord of one key the lower tetrachord of the next, or, in other words, by making the dominant of one key the tonic of the following. If we now reverse the process, and make the lower tetrachord into an upper one of a new key, we get a different series. As before we begin with the key of C.



85. If we examine the lower tetrachord here, we see that it has no semitone; we also see that there is only a semitone between the two tetrachords, instead of the "tone of disjunction." In fact the highest note of the lower tetrachord is a semitone too high. We therefore lower this note with a flat, making it B♭, and the scale of F is now correct. Just as the scale of G, the fifth *above* C, requires a sharp, so the scale of F, the fifth *below* C, requires a flat; and just as each dominant when taken as a tonic, required one additional sharp, it will be evident that each new subdominant (the fifth below the tonic),

* Of course if we had taken G as a tonic and developed the material of the key, as we have done with C, we should have obtained, as the major 3rd of the dominant D, F♯ and not F♮. Our object in the text is to show the connection of the scales of C and G, and the order in which the sharps are introduced in the series of keys we are now considering.

† If we continue this series to its extreme limit, the next tonic will be D♯, then will follow A♯, E♯, and B♯. We can go no further than this, because B♯ is the enharmonic of C, and we have now completed the "circle of fifths," as it is termed, going through the sharp keys with ascending fifths. The inconvenience of writing in these extreme keys is that they necessitate double-sharps in the signature. Thus the signature of A♯ major would be written



when treated as a tonic will require an additional flat. If the student has fully understood the explanations given above, it will be needless to repeat the process of forming the scales from the tetrachords. The series of descending fifths with their signatures will be as follows:—

Tonic.	*Signature.*
C	None.
F	B♭.
B♭	B♭, E♭.
E♭	B♭, E♭, A♭.
A♭	B♭, E♭, A♭, D♭.
D♭	B♭, E♭, A♭, D♭, G♭.
G♭	B♭, E♭, A♭, D♭, G♭, C♭.
C♭	B♭, E♭ A♭, D♭, G♭, C♭, F♭.

It is of course possible to continue the series further, as with the sharp keys; but as so doing would involve the use of double-flats in the signature, it is more convenient to use the enharmonic keys which contain sharps. For instance, instead of the key of F♭, that of E♮ is taken, and so on with the others.

86. It should be noticed that in passing to the sharper key—*i.e.*, taking the dominant as a new tonic—it is always the subdominant of the old key which is sharpened to become the new leading note; and conversely in passing to a flatter key—*i.e.*, taking the tonic as a new dominant, it is always the leading note of the old key which is flattened to become the new subdominant. Hence we obtain the easy rule for finding the tonic of any major key—the minor keys will be explained later—from the signature. In sharp keys, the last sharp is always the leading note, and in flat keys, the last flat is always the subdominant. When we know the leading-note or the subdominant of any key, it is a matter of very simple calculation to find the tonic.

87. One point still remains to be noticed in conclusion. As every tonic generates its dominant as its third harmonic, and as the whole key springs out of the tonic, it will be evident that *any key is the generator of keys having more sharps than itself*, for these must be derived through the dominant. And conversely, as every tonic springs (as a third harmonic) out of its own subdominant, it will be equally clear that *every key must be generated out of keys having more flats than itself.* This is a point that will be seen to be of great importance when we come to deal with key-relationship and modulation.

Exercises to Chapter III.

(1.) Write the three fundamental chords complete in the keys of D, E♭, F♯, G♭, A♮, and B♭.

(2.) Write major scales from the following notes, putting no key-signature, but inserting a flat or sharp before each note that requires one—E, A♭, F♯, F♭, G♯, B, B♭.

CHAPTER IV.

THE GENERAL LAWS OF PART-WRITING.

88. In Harmony any number of notes, from two upwards, may be sounded at one time. If each chord contain four notes, the harmony is said to be in four *parts*, if each contain three notes, the harmony is in three parts, and so on. Each part in the harmony has generally the same relative position to all the other parts; that is to say, all the upper notes of the harmony form one part, all the lowest notes another part, all the notes next above the lowest another, &c. The progression of these parts may be considered in two aspects; either as *melodic* progression, that is, the motion of each part regarded singly; or as *harmonic* progression, that is, the motion of each part with relation to all the other parts. Both these kinds of progression are governed by certain general laws, which will now be explained.

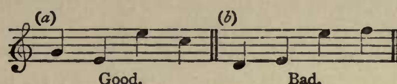
89. The rules for *melodic progression* are very few and simple. A good melody is one that flows naturally and easily; it is therefore best either to proceed by step of a second (called "conjunct motion")—that is, to the next note above or below; or by leap of a consonant interval (§ 16). If, as sometimes happens, it is necessary to leap by a dissonant interval, a diminished interval is to be preferred to an augmented one. Thus: is better than , though either is possible. The former is a diminished fifth, and the latter an augmented fourth.

90. If a part moves by a diminished interval it ought to return to a note within the interval, and not continue in the same direction. The best progression for any dissonant interval is, that the second of the two notes forming the interval should proceed to that note which is the resolution of the dissonance (§ 17) made, if the two notes are sounded together. For instance, the student will learn later (Chap. ix., § 199), that the diminished fifth just given will resolve thus: Therefore F, coming *after* B, moves to the E, just as it would do were it sounded *with* B. Had F been the first note and B the second, B would, for the same reason, have gone to C:

91. An augmented interval should seldom be used in melody unless both the notes belong to the same harmony. But the

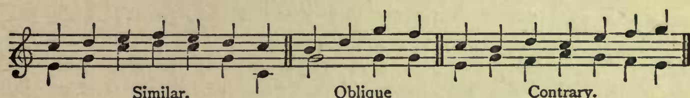
interval of the augmented second, which we shall find later in the minor scale (§ 171) between the sixth and seventh degrees may be used more freely.

92. A large interval in the melody is best approached and quitted in the opposite direction to that in which it leaps.

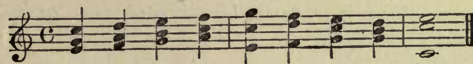


At (*a*) will be seen the leap of an octave *upwards* between the second and third notes. It is therefore much better that the first of the two notes should be approached downwards, and the second E left downwards, than that they should be approached and left in the same direction, as at (*b*).

93. By *harmonic* progression, as has been said above, is meant the way in which the parts move in their relation to one another. There are three kinds of motion; *similar* (sometimes, though less frequently, called "parallel") when two or more parts move in the same direction—up, or down; *oblique* when one part moves up or down while another remains stationary; and *contrary*, when one part ascends while another descends.



If the music is in more than two parts, it is evident that at least two of these different kinds of motion must be combined, except when all are moving in similar motion, *e.g.*,



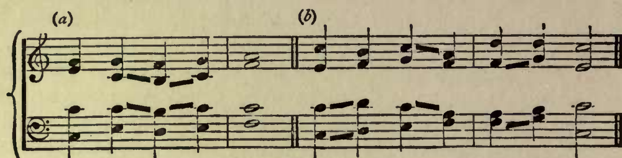
In this passage in the first bar all three parts move in similar motion. Between the last chord of the first bar and the first chord of the second, there is contrary motion between the two extreme parts, and oblique motion between each of the extreme parts and the middle part. Between the first and second chords of the second bar there is contrary motion between the upper part and each of the others, and therefore the two lower parts move by similar motion. The student can analyse the rest of the passage for himself in the same way.

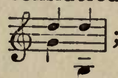
94. Most music is written in four-part harmony, and the parts are generally named after the four varieties of the human voice, being, in fact, often called "voices." The highest part is called the *treble*, or *soprano*, the next below this, the *alto*, the third part, counting downwards, the *tenor*, and the lowest part the *bass*. This refers to their relative rather than their actual positions; and it is important to remember that the lowest part of the harmony is

called the bass, even where (as in the example in the last paragraph) it is written in the treble staff.

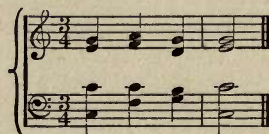
95. We shall now give the rules which the student must observe in part-writing. It is only right to say that these rules are not in all cases strictly adhered to by the great masters; the student will learn by experience, as his knowledge increases, when it is safe to relax them; but it may be laid down as a general principle that nobody can break rules with good effect till he knows how to keep them. For the present, therefore, no licences can be allowed.

96. RULE I. No two parts in harmony may move in unison, or in octaves with one another.



At (*a*) the alto and tenor are moving in unison in the second, third, and fourth crotchets. At (*b*) the tenor and bass are moving in octaves between the first and second crotchets; the soprano and tenor between the third and fourth; and the alto and bass between the fifth and sixth. Such passages are called *consecutive* unisons and octaves. It is important to remember that the repetition of *the same* octave or unison by two parts does not make consecutives, as the parts are not then *moving* in octaves or unisons. The same remark applies to the consecutive fifths forbidden in Rule 2. Neither is it considered to make consecutives if one part leaps an octave, *e.g.*: ; because the repetition of the same note at the distance of an octave does not change the harmony

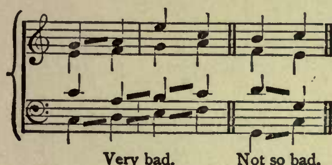
97. It must be said here that octaves will be found in most chords in four-part harmony; but they are not *consecutive* unless they occur *between the same parts.*
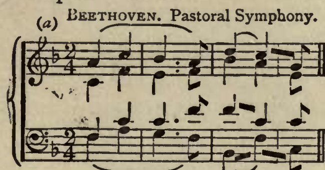


In this example each chord contains an octave of the bass note; but in the first chord the octave is between the tenor and bass, in the second between the alto and bass, in the third between the soprano and bass, and in the fourth between the tenor and bass again. No two of these octaves are therefore consecutive, and the passage is quite correct.

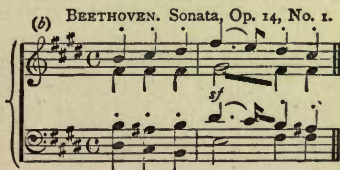
98. The rule just given does not apply to the doubling of a whole passage in octaves, such as is frequently found in pianoforte and orchestral music, nor to passages in which all the parts move in unisons and octaves. For instance, the familiar passage in Handel's "Hallelujah" chorus, to the words "For the Lord God omnipotent reigneth" is not considered as "consecutive octaves." Again, in Mendelssohn's "St. Paul," the soprano and alto sing the choral "To Thee, O Lord, I yield my spirit" in unison, the harmony being in three parts throughout. But this is not called consecutive unisons.

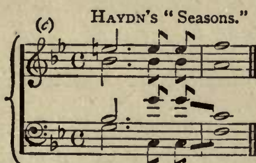
99. Rule II. Consecutive perfect fifths are not allowed between any two parts. They are, however, much less objectionable when taken by contrary than by similar motion, especially if one of the parts be a middle part, and the progression be between dominant and tonic harmony.

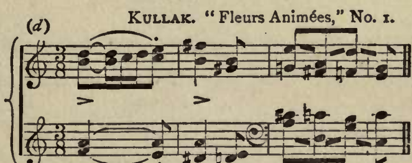


100. This rule is much more frequently broken by great composers than the rule prohibiting consecutive octaves. Consecutive fifths between the tonic and dominant chords are not infrequently met with, as in the first and third of the following examples:—





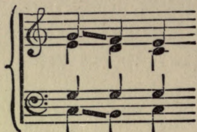




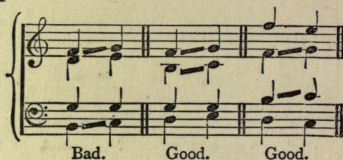
At (*a*) will be found in the third bar consecutive fifths by contrary motion between the tenor and bass; and from the third to the fourth bar, consecutive fifths between the extreme parts by similar motion. At the second bar of (*b*) are fifths between alto and tenor; at (*c*) are seen fifths by contrary motion between tenor and bass, and at (*d*) four consecutive fifths between extreme parts. These examples are not given for the student's imitation;

experience is required to understand when they may be properly introduced; but it is needful to mention them here, for the sake of completeness. By beginners the prohibition of consecutive fifths must be strictly attended to.

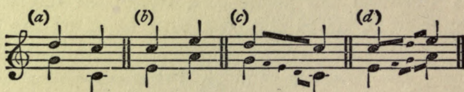
101. If one of the two fifths is diminished, the rule does not apply, *provided that the perfect fifth comes first.*



This progression is quite correct. But a diminished fifth followed by a perfect fifth is *forbidden* between the bass and an upper part, but *allowed* between two upper or middle parts, provided the lower part rises a semitone.

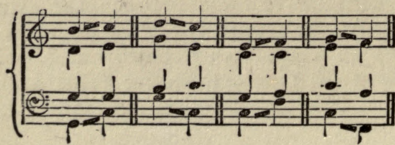


102. If two parts go by similar motion to octaves or perfect fifths, such progressions are called "hidden" octaves or fifths.

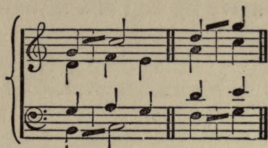


At (*a*) are two parts moving to an octave by similar motion. The lower part in leaping from G to C *passes over* the intermediate notes F, E, D, as shown at (*c*). If these notes are introduced, there will be consecutive octaves $\frac{D}{D}$ to $\frac{C}{C}$. Similarly at (*b*) the two parts leap to a fifth by similar motion. If the intermediate notes are inserted, as at (*d*), we see the fifths $\frac{C}{F}\ \frac{D}{G}\ \frac{E}{A}$. These octaves and fifths, being passed over, instead of sounded, are said to be *hidden.*

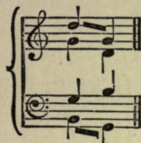
103. RULE III. Hidden octaves are forbidden between extreme parts, except, 1st when the bass rises a 4th or falls a 5th, either from dominant to tonic, or from tonic to subdominant, and at the same time the upper part moves by step,



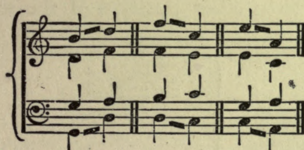
2nd, when the second of the two chords is a second inversion (§ 158).



and 3rd, when the second chord is another position of the first.
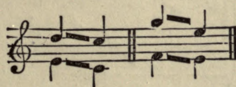


In other cases they are not allowed. Let the student examine the three bad examples of hidden octaves here given,
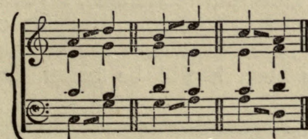


and he will see that they do not come under any of the exceptions just mentioned.

104. Hidden octaves are, however, allowed between any other of the parts than the two extreme parts, with one important exception. It is strictly forbidden to move from a 7th or 9th, to an octave by similar motion, when one part moves a second, and the other a third.
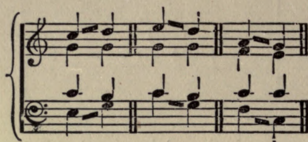


This is the very worst kind of hidden octaves, and must be most carefully avoided.

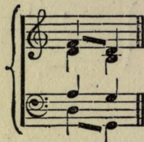
105. Rule IV. Hidden fifths are forbidden between extreme parts,



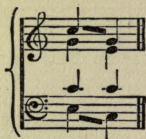
except, 1st, in a progression from the tonic to the dominant chord, or from the subdominant to the tonic chord, in both which cases the upper part must move by step of a second,



2nd, from the chord of the supertonic, with the third in the upper part, to the chord of the dominant, when the bass falls a fifth, and the upper part falls a third,

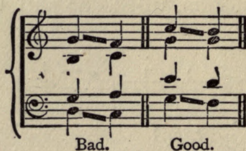


and 3rd, from one to another position of the same chord, exactly as with hidden octaves:



Except between extreme parts, hidden fifths are not prohibited.

106. RULE V. Consecutive fourths between the bass and an upper part are forbidden, except when the second of the two is an augmented fourth.
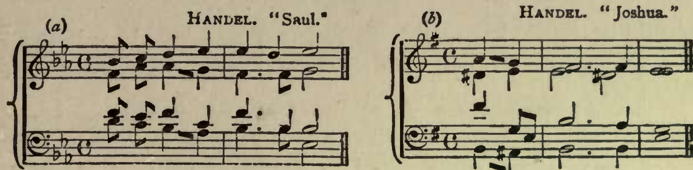


Between any of the upper parts consecutive fourths are not prohibited. They are sometimes to be found between the bass and a middle part; but even these are not advisable.

107. RULE VI. Consecutive seconds, sevenths, and ninths are forbidden between *any* two parts, unless one of the notes be a passing note, *i.e.*, a note which does not belong to the harmony (*see* § 255). Even then it will be better for the student to avoid them.

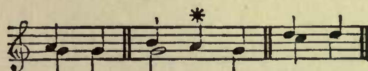
108. There is one somewhat important exception to this rule

to be found in the works of the old masters. Corelli, Handel, and others sometimes followed a dominant seventh (§ 197) by another seventh on the bass note next below. We give two examples from Handel's works.



In the second of these examples is also seen, in the tenor, an exception to the rule given in § 92. These passages are not given for the student's imitation, but because if no mention were made of such exceptions he might naturally infer, if he met with similar passages in the works of the great masters, that the rule here given was wrong. We have already said that hardly any of the rules in this chapter are *strictly* adhered to by great composers; but they are none the less useful, and even necessary for beginners.

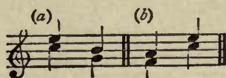
109. Rule VII. It is forbidden for two parts to go from a second into a unison.



This progression is sometimes used when the second is a *passing note* (§ 255,) as at (*); but the student is advised to avoid it even in this case.

110. In addition to the above rules, the following recommendations will be found serviceable to beginners. They need not be so stringently enforced as the rules just given; but attention to them will in many cases make the harmonies much smoother and the parts more flowing.

111. *Recommendation I.* It is not desirable to allow two parts to overlap, that is, to let a higher part proceed to a note below that previously sounded in a lower part, or, conversely, to let a lower part proceed to a note above that previously sounded in a higher part.
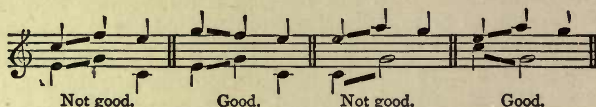


At (*a*) the upper part leaps from E to B, a lower note than C, taken in the first chord by the lower part. At (*b*) the lower part leaps to C, which is higher than the A of the upper part in

the first chord. Such progressions are sometimes necessary, but it is better to avoid them if possible. The crossing of two parts

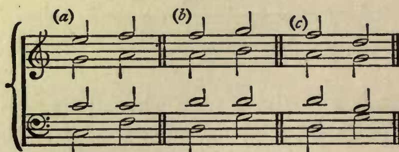


should be avoided altogether in four-part writing. In writing for a large number of parts (*see* Chapter XXI.), it is sometimes necessary.

112. *Recommendation II.* When two notes making a dissonance with one another (such as a second, seventh, or ninth) are taken without preparation—that is, if neither of them has been sounded in the same voice in the preceding chord—it is better that they should enter by contrary than by similar motion, especially in the extreme parts.

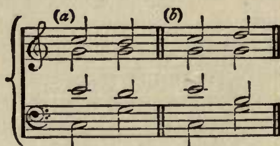


113. *Recommendation III.* When the same note occurs in two successive chords, it is generally (though not invariably) better to keep it in the same voice.



At (*a*) the two chords have the note C in common. We therefore keep it in the tenor voice. The hidden octaves between extreme parts here are among those that are permitted (§ 103). But if at (*b*) we keep the D in the tenor, we shall get *objectionable* hidden octaves between the extreme parts. In this case therefore the position of the second chord will be better as at (*c*).

114. *Recommendation IV.* Each voice should generally go to the nearest note in the following chord:



In this example the treble note C can move equally well to D or B, each being the next note of the scale. But if C moves to D,

as at (*b*), the tenor E will have to go to B, which is not its nearest note in the next chord. It is therefore better to let C go to B, as at (*a*), which allows the tenor also to go to its nearest note.

115. *Recommendation V.* When the bass moves by step, upwards or downwards, it is generally best to let the other parts move in contrary motion to it. In some cases, as will be seen in the next chapter, this is absolutely necessary to avoid consecutive fifths and octaves.

116. The student is advised to thoroughly master the rules and recommendations given in this chapter. If he does so, he will find comparatively little difficulty in working the exercises which he will shortly meet with.

CHAPTER V.

THE DIATONIC TRIADS OF THE MAJOR KEY—SEQUENCES.

[NOTE.—As Chapters II. and III. are not intended to be studied by beginners, it will be necessary in this chapter to repeat some of the explanations already given.]

117. By the word "Key," as has been already explained in Chapter III., is meant a collection of twelve notes within the compass of an octave, all of which have a definite relationship to the first note of the series, which is called the TONIC, or KEY-NOTE. As there are only seven degrees of the staff within the two notes of the octave, it follows that five out of these seven degrees must have two notes upon them, if we are to obtain twelve notes. In every key, when two notes are found on the same degree of the staff, one of these will be in accordance with the key-signature, and the other will have an accidental before it. There will be in all seven notes in accordance with the key-signature, one upon each degree of the staff, and therefore called *diatonic* notes (§ 9); and there will be five which will bear accidentals, and which are therefore called *chromatic* notes (§ 6). For the present we concern ourselves only with the diatonic notes, reserving till later the treatment of the chromatic.

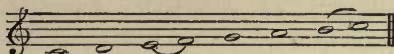
118. A *diatonic* scale (§ 9) is one which contains seven notes within the octave, one on each degree of the staff. If the interval between the tonic (§ 12) and the mediant (§ 13) is a major third (§ 22), the scale is called a major scale; if it be a minor third, it is called a minor scale. Let the student compare the intervals between the first and third notes of the major and minor scales given in § 9. Except with two notes of the minor scale, as will be seen later, a diatonic scale never requires accidentals, but conforms strictly to the key-signature.

119. A CHORD is a combination of more than two notes placed at the interval of a third one above another (§ 58). The lowest note, on which a chord is built, is called its *root*. A chord may consist of any number of notes from three to seven, though it is not necessary that all should be present at once. We shall see shortly that even in chords containing only three notes one is often omitted (§ 134).

120. A chord made by placing two thirds one above another, and therefore containing only three notes, is called a TRIAD. If, as is generally though not always the case, the upper note of a

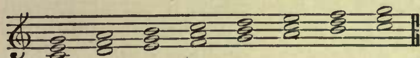
triad is a perfect fifth from the root, the chord is called a Common Chord. Every common chord is a triad, but every triad is not a common chord. If the third next above the root of a common chord be a major third, the chord is called a major chord; if it be a minor third above the root, it will be a minor chord.

121. If we take the diatonic scale of C major,



we shall see that the semitones fall between the third and fourth and the seventh and eighth degrees of the scale. The position of the semitones makes the difference between a major and a minor scale, as will be seen when we come to speak of the latter.

122. If we take each note of the above scale as a root, and place two thirds upon it as explained in § 120, we shall get a triad on each degree of the scale. As we shall use no notes except those of the diatonic scale itself, we shall have only diatonic triads.



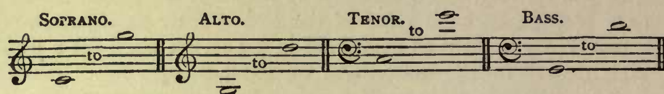
It will be seen that all these triads, except that upon the leading note, contain a perfect fifth from the root, and are therefore common chords. The chord upon the tonic is a major chord, and the nature of this chord determines the nature of the key. *A key which has a major chord on its tonic is called a Major Key, and a key which has a minor chord on its tonic is called a Minor Key.* The note taken as the tonic gives its name to the key; the chords given above are therefore in the key of *C major.* Any note may be chosen as a tonic; but the relation of the other notes of the scale to the tonic selected must always be the same, that is, they must be at the same distance from the tonic. The intervals between the tonic and the other notes of a major scale have been given in § 22. We have taken C as a tonic because its major scale requires neither sharps nor flats.

123. By examining the chords given above, it will be found that three degrees of the major scale—the tonic, subdominant, and dominant—bear major chords above them, and three others—the supertonic, mediant, and submediant—bear minor chords. The fifth above the leading note, instead of being, like all the others, a perfect fifth, is a *diminished* fifth (§ 25). There is therefore no common chord (§ 120) on the leading note, and the chord which we find instead is called the Diminished Triad. This chord is very rarely used with its root in the bass.

124. It was said in the last chapter (§ 94) that most music is written in four-part harmony. We shall therefore in future give our examples in four parts. But to write a common chord, or a triad, containing only three notes, in four parts it will evidently be necessary to *double* one of the notes, that is to put the same note

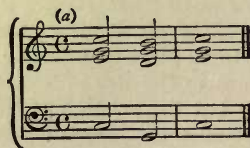
in two of the parts, either in unison, or at the distance of an octave, or even two or three octaves. It must be remembered that this doubling of a note does not alter the nature of the chord. Though the word "triad" literally means a combination of three notes, a triad does not cease to be such, in however many parts the harmony may be, unless some *additional note*, and not a mere doubling of notes already present, be introduced into the chord. We shall see presently which are the best notes to double.

125. In writing four-part harmony, the four "voice-parts," soprano, alto, tenor, and bass (§ 94), are kept best as far as possible within the compass of the voices after which they are named. The general compass of each voice is about the following:—

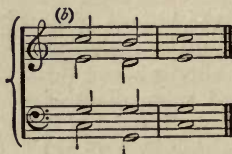


These limits should be very rarely, if ever, exceeded; and even within them it is best to keep near the middle of the compass, and not to use more of the extreme notes, either high or low, than are absolutely needful for a good progression of the parts.

126. If in four-part harmony the three upper parts lie close together, and at a distance from the bass—in other words, if the soprano and tenor are within an octave of one another,



the harmony is said to be in *close position*. If the parts lie at more equal distances, and the tenor is more than an octave from the treble,

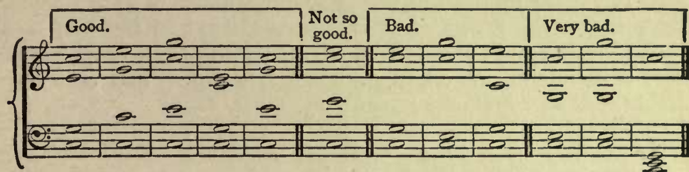


the harmony is said to be in *extended position*. In most compositions a mixture of both positions will be found. If the treble part lies low, close position will most likely be needful, to prevent the tenor part from going below its compass; but if the treble is high, extended position will generally be advisable.

127. The best position of harmony is mostly that which allows the parts to lie at approximately equal distances, when this is possible. At example (*a*) in the last paragraph, in the first chord

there is a tenth between bass and tenor, a third between tenor and alto, and a fourth between alto and soprano. This position is quite correct; but the position of the same chord at (*b*) is preferable; for here there is a fifth between bass and tenor, a sixth between tenor and alto, and a sixth between alto and soprano. The intervals between the voices are much more equal.

128. It will sometimes happen that it is impossible to keep the voices at approximately equal distances without breaking some rule. If there must be a large interval between two voices, it should, with very rare exceptions, be between the two lowest, the tenor and the bass. Excepting occasionally for a single chord, there should never be a larger interval than an octave between soprano and alto, or alto and tenor. We give examples of good and bad positions of the chord of C major; the student can easily find out from what has been said why each is good or bad.



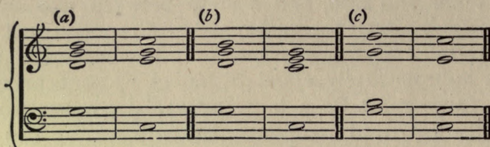
129. It will be seen that in the examples just given, the relative positions of the chords vary widely; sometimes the root, at other times the third or fifth is at the top. It must be clearly understood that the relative positions of the upper notes of a chord make no difference to its nature, *provided the same note of the chord is in the bass.* Here the root is in the bass in each instance, and the chord is said to be "in its root position." But if the third or fifth of the chord were in the bass, we should have inversions of the chord. These will be treated of in Chapter VI.

130. With one important exception to be mentioned presently, it is possible to double any of the notes of a common chord. In general the root is the best note to double, though cases will be frequently met with in which, for the sake of a good progression of the harmony, it is expedient, or even necessary, to double one of the other notes. Of the other two notes, if the chord be major, it is mostly better to double the fifth than the third; but in a minor chord it is just as good, and sometimes better, to double the third.

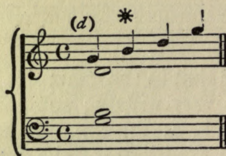
131. The reason why it is often unadvisable to double the major third of a chord is that its third "upper partial" (§ 36) is only a semitone below the root of the chord—of course an upper octave of the root. As this third upper partial is usually rather strong in the compound tone of the note, its power is so increased by doubling as to produce in some positions a distinctly harsh effect against the root. It is nevertheless often necessary to double it, as we shall see later.

132. The exception referred to above in speaking of the doubling of a note was that of the leading note. This note is the third of
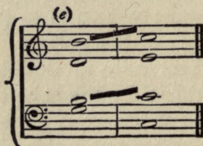
the dominant chord, and is a semitone below the tonic, toward which it has the strong upward tendency which gives it its name. If the dominant chord be followed by the tonic chord, the leading note, especially if in the upper part, must rise.



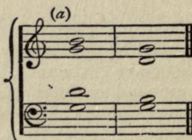
Let the student play the chords marked (*a*) and (*b*). He will feel that the progression (*a*) satisfies the ear, while (*b*) does not do so. The effect of the leading note falling is less unsatisfactory when it is in a middle voice, as at (*c*); but this progression, though frequently used by Bach, is not to be recommended to beginners. Excepting in the repetition of a *sequence* (§ 137), in the very rare second inversion of the chord on the mediant (§ 162), or when the notes of the dominant chord are taken in *arpeggio*, that is in succession while the harmony remains the same,



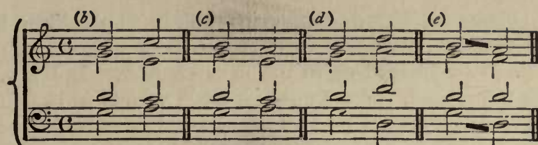
the leading note must never be doubled; and when the dominant chord is followed by the tonic chord, the note must always rise a semitone. It is evident that if the leading note is in two voices, and both rise a semitone, consecutive octaves (§ 96) will result.



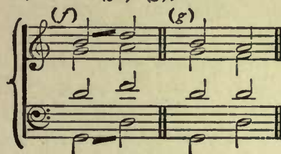
133. The leading note is, however, free to fall when the dominant chord merely changes its position,



or when it is followed by some other chord than the tonic, in which case the leading note may either rise or fall.

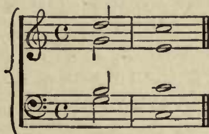


At (*b*) (*c*) the dominant chord is followed by the chord of the submediant, and the leading note may either rise to the third or fall to the root of the next chord, the former being slightly preferable. At (*d*) (*e*) the dominant chord is followed by the supertonic; and either progression is *possible*, though (*d*) is much better, not only because contrary motion is mostly to be preferred to similar, but also because at (*e*) we have objectionable hidden fifths (§ 105) between the extreme parts. But if the bass *rose* from the dominant to the supertonic, as at (*f*) (*g*),



it would be needful for the leading note to fall, as at (*g*); for if it rises, as at (*f*) we shall get bad "hidden octaves" (§ 103) between extreme parts.

134. It was said in § 119 that one note of a triad was sometimes omitted. This is mostly the fifth of the chord—very rarely the third, because the latter note shows whether the chord is major or minor. But it not infrequently becomes necessary to omit the fifth, in order to secure a correct progression of the parts. For example, if we are harmonising a melody in the key of C, which ends , the two last chords must be dominant and tonic in their root positions. The only correct way of harmonising these chords will be—

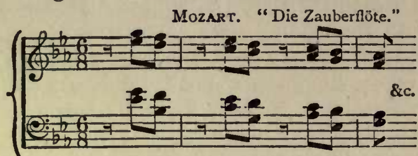


Here the melody descends to the tonic; the bass also goes to the tonic; and the leading note must rise to the tonic (§ 132); there is therefore only one part, the alto, remaining; and as the third is needed to fix the nature of the chord, this note is taken, and the fifth omitted.* Occasionally also, though much more rarely than the fifth, the root of the chord is the note omitted in inversions.

* In old music, especially at the close of a piece in a minor key, the third is occasionally omitted, as at the end of the "Kyrie" in Mozart's "Requiem"; but this is exceptional, as we shall see when treating of the minor key.

135. Common chords taken in their root position have an effect of greater firmness and strength than when taken in the inversions to be treated of in the next chapter. But if only root positions were used, there would be little variety in the harmony. It is therefore somewhat rare to find an entire passage containing these alone. We give a short one from Mozart.

MOZART. "Die Zauberflöte."

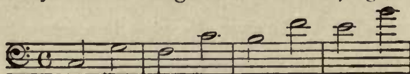


The voice parts are omitted, as they are in unison with the extreme parts of the harmony.

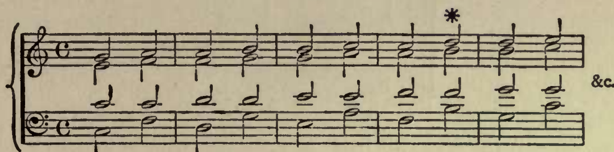
136. This short passage is full of instructiveness for the student, and should be carefully examined. Let it be first noticed that within the space of two bars we find all the diatonic common chords of the major key, in each case with the root in the bass. Next let it be observed that the tenor doubles the soprano in the octave through the whole passage. This illustrates what was said in the last chapter (§ 98). The law against consecutive octaves is not broken by such a progression as this, though it would be if only two or three notes of the tenor, instead of all, moved in octaves with the soprano. Though there are four parts moving here, the passage is not in four-part harmony, but in three-part harmony with one part doubled. It will be seen further that in every alternate chord the fifth is omitted. This is because the second and third pairs of chords are exact copies of the first pair, but on different parts of the scale.

137. A passage constructed after a regular pattern of this kind is called a SEQUENCE. When any progression of the bass is repeated on higher or lower degrees of the scale, it should be accompanied by harmony which is also exactly repeated at corresponding higher or lower degrees. In the passage we are now examining, the bass of the third and fourth chords is the same as that of the first and second, *a third lower*, and each of the other parts is a third lower than it was at first. The chords are in corresponding positions, in every respect. In the first chord the third is at the top, and in the second the fifth; the third and fourth chords have precisely the same arrangement, and so have the fifth and sixth.

138. The pattern set for a sequence may be imitated at any interval above or below. Practically, however, the limit of a third is seldom if ever exceeded, as imitation at a larger interval would soon carry us beyond the range of the voices, *e.g.*,

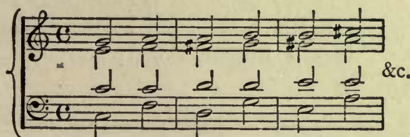


A pattern may consist of any number of notes; generally there are two, or at most three. We will now give a simple sequence, and the student will have no difficulty in understanding it.



Here it will be seen that all the parts in the second bar are one note higher than in the first, in the third bar one note higher than in the second, and so on to the end. All the intervals in the chords remain the same *as to their names*, but differ in quality according to their position in the scale. Thus the first chord of bar 1 is major, of bars 2 and 3 minor, and of 4 and 5 major again. This is because the music remains in one key. Such a sequence is termed a *tonal* sequence.

139. If on the other hand the quality of the intervals is exactly the same in the imitations as in the pattern, the sequence will be *real*, that is exact; but the music will not remain in the same key.



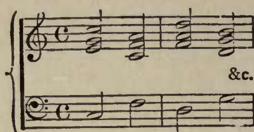
A real sequence is much rarer than a tonal one.

140. At the fourth bar of the sequence given in § 138, the second chord, marked with (✱), requires special notice. It will be seen that we have here the diminished triad in its root position (§ 123). It will also be noticed that the leading note is doubled (§ 132), and that between the two notes of the bass in this bar is seen the unmelodic interval of the augmented fourth (§ 91). These departures from the rules already given are only justified by the fact that they occur in *one of the repetitions* of a sequence. Had the fourth bar of the example been given as a *pattern* it would have been incorrect, and the doubled leading note would not have been allowed.*

141. The sequence we are examining might have been

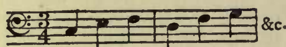
* It would have been possible in this passage to have had B♭ instead of B♮ in the fourth bar, making a transition for a moment into the key of F. The progression would then have been analogous to the well-known sequence in Handel's chorus, "The horse and his rider," in "Israel in Egypt," quoted in Macfarren's "Six Lectures on Harmony," p. 60.

harmonised differently. We might, for instance, have put the first chord in a different position, still retaining the second as we have given it.

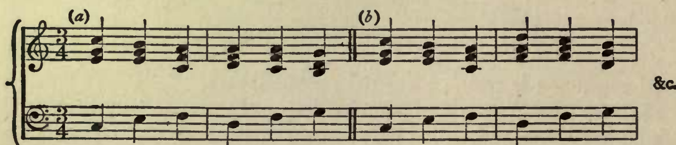


We preferred to give at first a position which allowed strict observance of the recommendations given in Chapter IV. at §§ 113, 114. But the effect of the sequence will be better if carried out after the pattern last indicated; because as a general rule contrary motion is preferable to similar.

142. It will in many sequences be found impossible to attend to the recommendations just referred to. For example, suppose we work a sequence on this pattern,

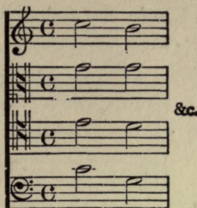


if in the second bar we attempt to keep the two notes F and A of the chord of D in the same voices in which they were in the preceding chord, as at (*a*) below, it is clear that the second bar will not correspond to the pattern set by the first, and there will be no *sequence*. It will therefore be necessary to arrange the upper parts as at (*b*).



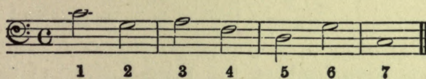
143. The student can now begin to write simple exercises on common chords. He is advised to write them in what is called "short score"—that is, on two staves: the treble and alto on the upper, and the tenor and bass on the lower, staff. In order to distinguish clearly the progression of the parts, all the notes of the treble and tenor voices should have their stems turned upwards, and the alto and bass should have their stems downwards. If two parts written on the same staff are in unison, this is shown by the note having two stems, one upward and the other downward—; or, in case of a semibreve, by putting two notes side by side (○○). If, however, the student is acquainted with the C clefs (which it is most desirable that he should be), we strongly advise him as soon as possible to begin

writing his exercises in open score, giving a separate staff tc each voice—thus:

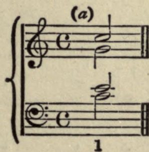


This is the first bar of the exercise worked in § 145 written in open score.

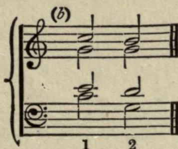
144. That the manner in which the exercises are to be done may be clearly understood, we will work a short passage as a model for the student, explaining the progression of every note in each chord, and giving the reasons for the way in which one follows another. Instead of quoting the rules, we shall, to save space, simply refer to the paragraphs in which they are given. We will choose the following simple bass, numbering each note for the convenience of reference.



145. The position of the first chord is optional; we may have either the third, the fifth, or the octave of the root at the top. The position of the following chords will depend upon the position of the first. Let us take the chord in the most usual position, with the octave of the root at the top. It has been said (§ 130) that the root is generally the best note to double. The first chord will then be in this position—
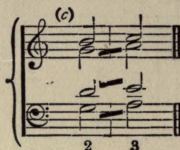


Chord 2 will contain the notes G, B, D. Of these, G was in the first chord; we therefore keep it in the alto (§ 113), and put B in the treble and D in the tenor, these being the nearest notes to those which they had in the first chord (§ 114). The progression will therefore be

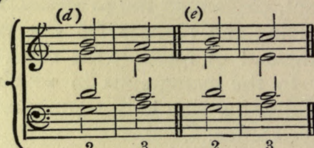


Between chords 2 and 3 the bass moves by step. The third

chord contains the notes A, C, E. Of these, the nearest note to the G of the alto in chord 2 is A; but if we take A in the alto, C in the treble, and E in the tenor, we shall have consecutive perfect fifths and octaves with the bass.

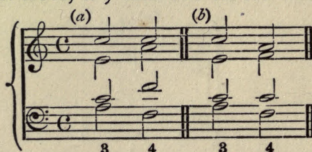


Here therefore the recommendation given in § 115 comes into force. We can either make all the upper parts move downwards (*i.e.* in contrary motion to the bass) as at (*d*), or take only the octave and fifth of the second chord down, and let the leading-note rise, as at (*e*).

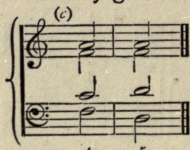


Either progression is correct; but as it is generally best to let the leading note rise when it can, we shall choose (*e*); in this chord it will be seen we have doubled the third instead of the root; note that it is a *minor* third (§ 130).

146. The chord of F (No. 4) consists of the notes F, A, C. Of these, C is seen both in the treble and tenor of chord 3. In which of the two voices shall we retain it? If we keep it in the treble, as at (*a*), it will be seen that the alto and tenor voices overlap (§ 111); we shall therefore keep it in the tenor; the alto will move to its nearest note, F; and the treble will fall to A.

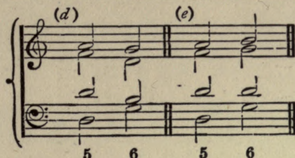


The fourth and fifth chords have two notes, A and F, in common; here therefore there is no difficulty; both remain in the same voices in which they were; and C in the tenor goes to D, in contrary motion to the bass. If it came down to A, doubling the fifth of the chord, we should evidently get consecutive fifths.

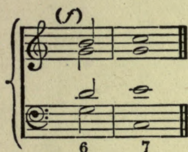


We can put the sixth chord (G, B, D) in one of two positions.

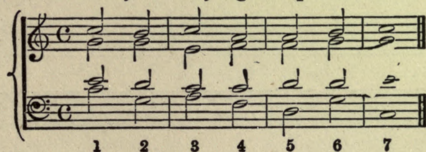
We can either take the three upper parts in contrary motion to the bass, as at (*d*), or we can keep the D of the chord in the same voice (the tenor), which had it in the last chord, as at (*e*)



In this case the latter is preferable, because it is best, if possible, to finish a piece with the octave of the root in the highest voice; and if we take position (*d*) the leading note in the tenor must rise to C (§ 132), the alto must rise to E, and the treble continue on G. But after position (*e*) the progression of the last two chords will be as at (*f*).



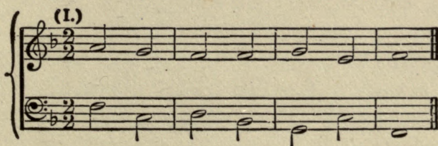
147. We now give the whole passage together; and the student is advised to take the bass in § 144, and try to work the exercise in different positions. If he has followed the explanations just given, he will find little difficulty in varying the positions of the chords.

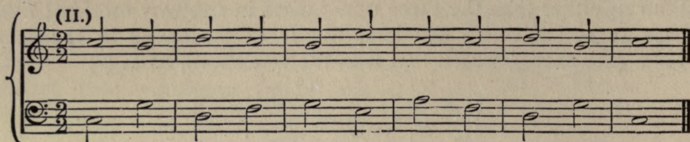


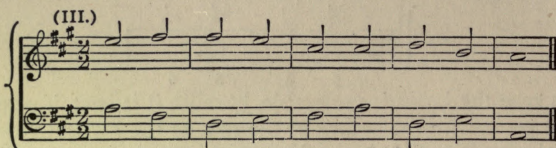
148. All the examples hitherto given have been in the key of C. This has been intentional, as affording a simpler means of comparing one chord with another; but it is important that the student should be able to write with equal ease in any key. The exercises now to be given will therefore be in various keys. In the earlier ones, the treble as well as the bass will be given, in order to simplify the labour of the beginner; but in the later exercises the student must supply all the upper parts.

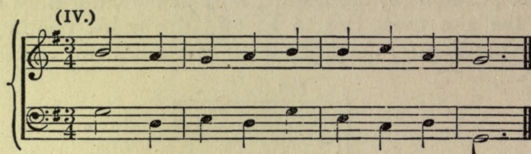
Exercises to Chapter V.

Treble and bass given. Add alto and tenor parts.

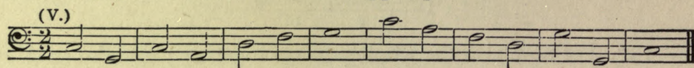


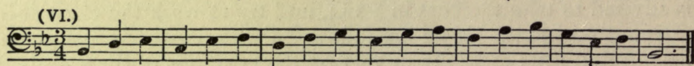


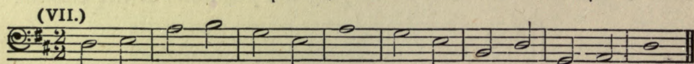


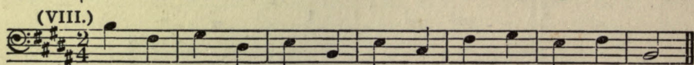


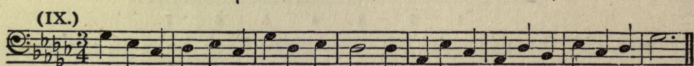
Bass only given. Add the three upper parts.

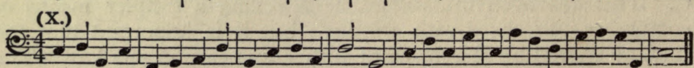




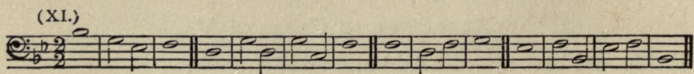








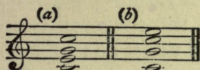
[We give, as the last exercise, the bass for a Double Chant. The student must endeavour to make the melody in the upper part as interesting as he can.]



CHAPTER VI.

THE INVERSIONS OF THE TRIADS OF A MAJOR KEY.

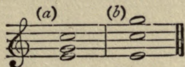
149. Hitherto all the chords we have used have been in their root positions, but in order to obtain greater variety of harmony, they can be, and frequently are, *inverted.* The inversion of an interval was defined (§ 26) as placing the lower note above the upper, or the upper below the lower. But it is possible to invert some of the intervals of a chord without inverting the chord itself. Thus if we compare the two positions



(*a*) and (*b*) of the chord of C, we shall see that at (*a*) E is a third below G, and at (*b*) the relative position of the two notes is changed, and E is a sixth above G—the inversion of a third. But the chord itself is not inverted, for the root, C, is in the bass in both cases.

150. *A chord is said to be inverted when any other note than the root is placed in the bass.* A moment's thought will show the student that the number of inversions of which any chord is susceptible must be one less than the number of notes which it contains. Thus a triad, which consists of three notes, has two inversions, because it contains two notes besides its root, and either of these notes can be placed in the bass. Similarly a chord of the seventh, because it contains four notes, has three inversions, and so on. If the third of the chord is in the bass, we have the first inversion, if the fifth is in the bass, the second inversion, &c.; the inversions being always reckoned according to the number in the series of thirds above the root of the note which is in the bass.

151. The first inversion of a chord, as we have just said, has the third in the bass. As in the root position, it makes no difference to the nature of the chord which of the other notes stands next above the third.

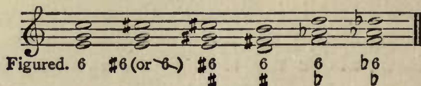


Both (*a*) and (*b*) are equally first inversions of the chord of C. The root, which was before a third below E, is now inverted with respect to that note, and is a sixth above it; but the fifth of the

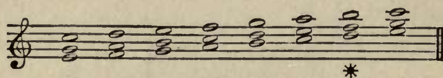
chord, G, which in the root position was a third above E, is still a third above it. The first inversion of a triad is therefore called the chord of the sixth and third, or, more usually, the *chord of the sixth*, the third being always implied when the shorter name is used.

152. In order that it may be known, when only the bass is given, what harmony is to be placed above it—that is, whether the bass note is the root of a cnord, or one of the other notes, and therefore whether we have an inversion, we use what was formerly called *Thorough Bass*, but is now more usually spoken of as *Figured Bass*. This is a kind of musical short-hand, which indicates, by one or more figures placed under (or sometimes over) the bass note, the nature of the chord of which the bass is given. A common chord in its root position, as it contains the fifth and third of the bass note would be figured $\substack{5\\3}$ — the larger figure, when there is more than one, being almost invariably placed at the top. But, as a matter of actual practice, the common chord in its root position is not figured at all, except when one of its notes requires an accidental before it, or when two or more chords one of which is a common chord, are to follow one another on the same bass note. (*See* § 165.)

153. As a first inversion has the intervals of a third and sixth above the bass note, its full figuring would be $\substack{6\\3}$. But just as we speak of it merely as a "chord of the sixth," we mostly figure it only with a 6. In a chord of the sixth *the third is always implied*, but it is not specially marked, excepting when it requires an accidental, and in that case the accidental ♯ or ♭ is written without the figure 3. *An accidental without a figure at its side always refers to the third of the bass note.* But if the sixth required an accidental this would have to be written thus—♯6 or ♭6, sometimes also 6♯ or 6♭. A sharpened note is frequently indicated by a stroke drawn through the figure thus—6̸. The following examples will make this clear



154. All the triads given in § 122 can be used in their first inversion; and we shall thus have a chord of the sixth on every degree of the scale.

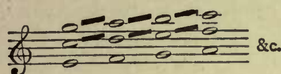


In four-part harmony one of these notes must be doubled, just as in the root position; the general rules with regard to doubling given in the last chapter (§ 130) apply also here.

155. At * in the last example will be seen the first inversion

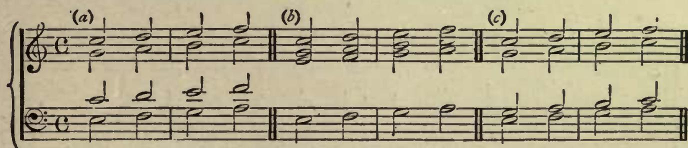
of the diminished triad on the leading note. Though this chord is very rarely used in its root position (§§ 123, 140) it is very often to be met with in its first inversion. Here, though the F and B are still dissonant to one another, they produce a much less harsh effect than in their root position, because now both the notes are consonant to the bass. Greater freedom is therefore allowed in their use and in their progression.

156. Provided that the general laws of part-writing given in Chapter IV. are observed, there are no special restrictions as to the treatment of first inversions when they occur singly, that is between other positions of chords. But when two or more first inversions follow one another, a little care is needed in their management. If, for instance, in the series of sixths given in § 154 we place the fifth of each chord in the upper part,



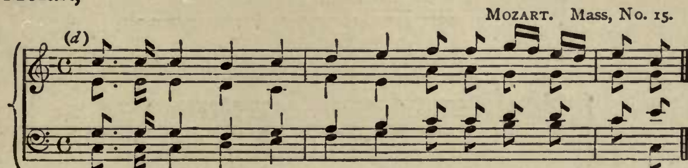
it is clear that we shall have a series of consecutive fifths with the roots. Hence we get the following important rule :—*When two or more first inversions follow one another, the sixth from the bass should mostly be in the upper part if the bass moves by step.* The fifth will then be a fourth below the root, and consecutive fourths are not forbidden between upper parts (§ 106.)

157. Another point to be attended to in a series of sixths is the doubling of one of the notes of the chords. If either the root, the third, or the fifth be doubled in each chord,



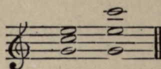
it is clear that there will be consecutive octaves, sometimes also, as at (*a*) consecutive fifths. From this we deduce another rule :— *The same note of the chord must not be doubled in two successive first inversions.* The usual plan adopted is to double the root and the third of the chord alternately, as in the following example from Mozart,

Mozart. Mass, No. 15.



care being of course taken not to double the leading note (§ 132), but the fifth may also sometimes be doubled.

158. The second inversion of a chord has the fifth in the bass.



In this chord both root and third are above the fifth, and are therefore inverted with respect to it. The root is now a fourth and the third is a sixth above the bass note. This inversion is therefore called the chord of the sixth and fourth, or more commonly "the chord of six-four." It is figured $^6_4$. The lower figure cannot be omitted, or there would be no means of distinguishing between this chord and the first inversion.

159. If the student will play this chord on the piano, he will notice that its effect is much more unsatisfying than that of either the root position or the first inversion; it requires, in fact, to be followed by some other chord, such as a common chord in its root position on the same bass note. This is because *a fourth with the bass* (though not between two upper parts) *produces the effect of a dissonance.* For this reason the second inversions of chords require special treatment, as will be seen directly.

160. Any triad may be taken in its second inversion. Some theorists state that only the tonic, dominant, and subdominant chords may be so used; but this is erroneous, as will appear from the following examples from the works of the great masters, in which the second inversion of a chord on every degree of the scale is given:—

HAYDN. "Creation."

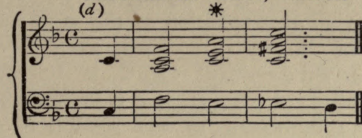
(*a*)

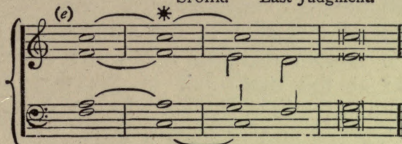
MENDELSSOHN. "St. Paul."

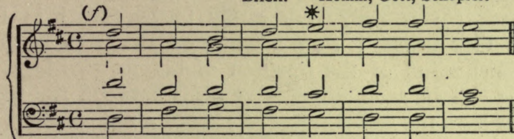
(*b*)

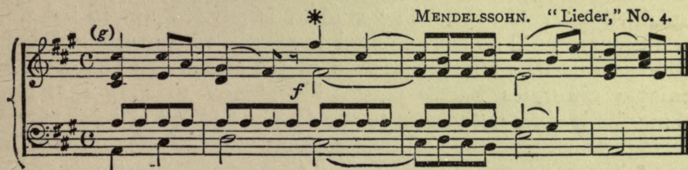
SCHUMANN. "Paradise and the Peri."

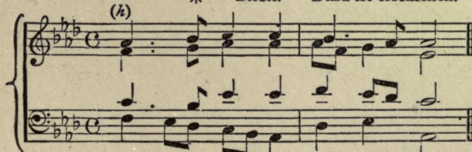
(*c*)











In each example the $\frac{6}{4}$ chord is marked with an asterisk.

161. All these extracts deserve a little study; and an examination of them will help the student to understand the rules we shall presently give for the treatment of the chord. At (*a*) is seen the second inversion of the tonic chord followed by another chord on the same bass note. This is by far the commonest way of using a $\frac{6}{4}$, and as it mostly occurs at the end of a phrase it may be called a "cadential $\frac{6}{4}$." At (*b*) we find the same chord, differently followed, *viz.*, by a chord on the next degree of the scale.

162. The second inversions of chords on the supertonic and mediant are very rare. At (*c*) is the supertonic chord in the

second inversion; the bass, as usual, moves by step, and the chord is approached from another position of the same harmony. The second inversion of the mediant chord, as at (*d*), is probably even rarer. The subdominant chord is tolerably common, especially when used as at (*e*). Here it is cadential, like the tonic chord at (*a*). The dominant in the second inversion is also frequent, as at (*f*); but this chord cannot be used like those of the tonic and subdominant cadentially.

163. The second inversion of the submediant chord (*g*) is another which is seldom met with; but the student can find another example at the ninth bar of the first movement of Beethoven's sonata in E minor, Op. 90. In the passage given from Mendelssohn there will also be seen a cadential $\frac{6}{4}$ of the tonic chord. The second inversion of the diminished triad on the leading note (*h*) is only very rarely to be found in four-part harmony. Our extract is from a Church Cantata by Bach, and it gives an illustration of the freedom of his part-writing. In the second bar will be seen consecutive fifths between the treble and tenor. But here the treble note (A♭) is not a note of the harmony, but an *anticipation* of a note of the next chord, as will be explained later (§ 263). The student is advised not to imitate such licences until he has acquired the skill in part-writing which Bach possessed. The progression of the alto at the end of this example illustrates Bach's partiality (referred to in § 132) for taking the leading note down to the fifth of a chord in a cadence.

164. In consequence of the dissonant effect of the fourth with the bass, it is necessary to be careful in approaching, as well as in quitting a $\frac{6}{4}$ chord. The rules for approaching this chord, which are deduced from the practice of the great masters, and which will be all illustrated by the examples given in § 160, are the following:—

I. A second inversion may be approached either by leap, as at (*a*), or by step, as at (*d*) (*g*), from the root position of another chord.

II. It may be approached by leap, as at (*c*) (*e*), from another position of the same chord.

III. It may be approached by step *(but not by leap)* from the inversion of another chord, as at (*b*) (*f*) (*h*).

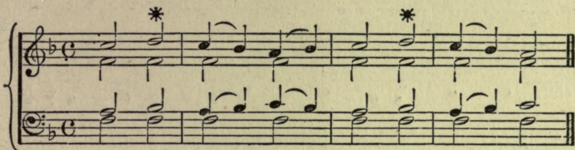
IV. It may be preceded by a different chord upon the same bass note, as in the passage from Beethoven's Op. 90, mentioned in § 163. See also example from the "Sicilian Mariners' Hymn" in the next paragraph.

165. No less important than the rules just given are those which regulate the leaving a second inversion. These rules are three in number—

I. The bass of any second inversion may move by step of a tone,

as at (*b*) (*c*) (*f*), of a diatonic semitone, as at (*g*) (*h*), or of a chromatic semitone, as at (*d*), upwards or downwards; and the following chord may be either a chord in root position, as at (*c*) (*f*), or an inversion, as at (*b*) (*d*) (*g*) (*h*).

II. The second inversions of the tonic and subdominant chords may be followed by another chord on the same bass note, or its octave, as at (*a*) (*e*). In such cases it will be needful to figure the common chord. (§ 152.) Thus the last bass note of (*a*) would be figured $^{6}_{4}\,^{5}_{3}$. This is what has been described as a cadential $^{6}_{4}$; and in this case the $^{6}_{4}$ may not be on a weaker accent than the chord which follows it. This rule, however, does not apply when the $^{6}_{4}$ chord has itself been preceded by another chord on the same bass note, as in the well-known "Sicilian Mariners' Hymn,"



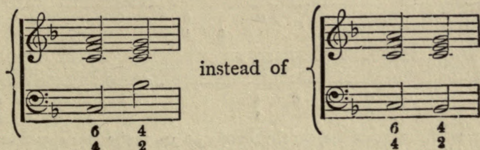
where the $^{6}_{4}$ chords are on the second half of the bar and the following $^{5}_{3}$ on the first beat. When the bass moves, as in rule I., there is no restriction as to the position in the bar of the $^{6}_{4}$ chord.

III. The bass of a second inversion may leap to another note of the same chord while the harmony remains unchanged; but it is not allowed to leap in any other case.*

166. In the second inversion of any chord, the best note to double is not the root, as in the other positions of a chord, because here the root, being a fourth above the bass, is the dissonant note. The fifth of the chord is the best note to double, being of course the octave of the bass note. It will be seen that in all the examples (*a*) to (*f*) of § 160, the bass note is the one doubled.

167. The rules just given for the treatment of the $^{6}_{4}$ chord,

* An apparent, but not real, exception to this rule is when the bass of a $^{6}_{4}$ chord rises a seventh to the *octave* of the note below; *e.g.*



being necessarily somewhat minute, will probably give beginners a little trouble. It is however strongly recommended that they should be thoroughly mastered, for there is no point on which students are more apt to go wrong, or with regard to which the results of mistakes are more disastrous.

EXERCISES TO CHAPTER VI.

Treble and Bass given. Add alto and tenor parts.

(I.)

(II.)

Bass only given. Add the three upper parts

(III.)

(IV.)

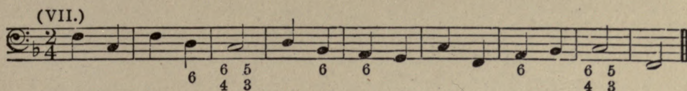
(V.)

(VI.)

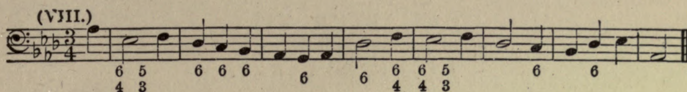
(a)

(a) The student must be careful here not to make consecutive 4ths with the bass.

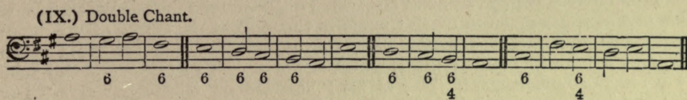
(VII.)



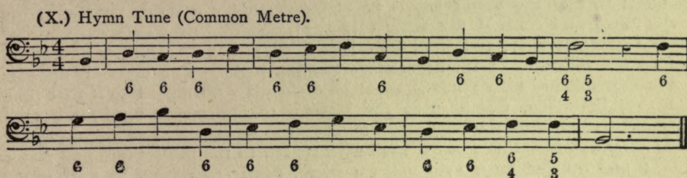
(VIII.)



(IX.) Double Chant.



(X.) Hymn Tune (Common Metre).

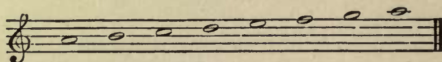


CHAPTER VII.

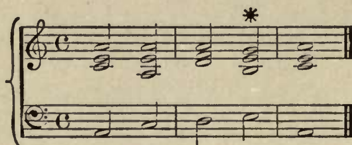
THE MINOR KEY.

168. There is hardly any point connected with harmony the scientific explanation of which has given so much trouble to theorists as the nature of the minor key. The difficulty has arisen mainly from the fact that the tonic chord contains a note (the minor third) which is not a part of the compound tone (§ 40) of the fundamental. Day in his "Treatise on Harmony" says "The real fact is, that any minor key is an arbitrary, not a natural, change of the major third and sixth of the scale into the minor." Sir Frederick Ouseley takes a different view, and gives the minor third, not as an arbitrary alteration, but as the 19th note of the harmonic series (*see* § 36). This certainly appears a more satisfactory view; but it must be observed with regard to it that (like the 17th harmonic, which gives the interval of the minor ninth) the 19th harmonic is produced too high up in the series to be regarded as natural *in the same sense* in which this word is used with regard to the perfect fifth and major third; and no generator ever gives a minor third from itself as part of its compound tone instead of a major third. Here therefore the principle of æsthetic selection referred to in §§ 42, 51, comes into play. The only minor third in the compound tone of any note is that to be found between the fifth and sixth partial tones. Helmholtz says that the modern minor mode is a fusion of three of the old ecclesiastical modes, the Dorian, Æolian, and Phrygian ("Sensations of Tone," p. 381).

169. In a note to § 79 it was pointed out that if we commence a scale on some other note than C, and use no flats or sharps, we shall obtain various forms of the old ecclesiastical scales. If we begin with the note A, we shall have the "Æolian" scale.

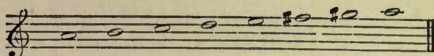


If the student will compare this scale with the minor scale given in Chapter I., § 9, and will notice the intervals between each note, he will see that the only note in the Æolian scale which differs from the modern minor is the seventh. In fact the Æolian scale, like several other of the older scales, has no leading note, the seventh being a tone instead of a semitone below the tonic. Such a scale is to be found in some old national airs. As modern music developed, the feeling of the necessity for a leading note became stronger. It was found that a chord on the dominant with a minor third produced a most unpleasant effect before the tonic, *e.g.*,
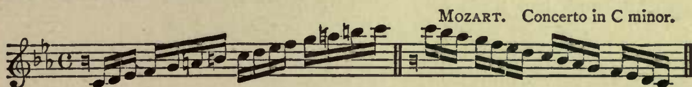


Here, with our modern feeling for music, the effect of the fourth chord is simply detestable. But if the passage is played again substituting G♯ for G♮ the ear is satisfied at once. This alteration of the seventh note changes the Æolian scale given above into our modern minor scale.

170. As a matter of history, however, this result was not reached by a leap. The old music was mostly written for voices, and augmented intervals were forbidden, as being difficult to sing. But from F♮ to G♯ in the now altered scale is an interval of an augmented second. This not being allowed, and the G♯ being felt indispensable, it became necessary also to sharpen the F. This gave another form of the minor scale,



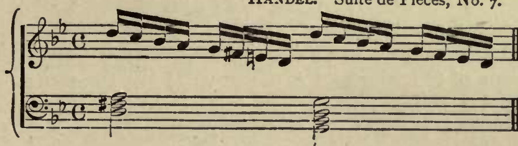
which is still in use for melodic, though (as will be seen later) rarely for harmonic purposes. As the necessity of the interval of a semitone between the seventh of the scale and the tonic is not felt in descending, the form of scale last given is chiefly used in ascending passages, the older Æolian form given in § 169 being generally retained in descending. This will be seen in the two following scales, taken from the finale of Mozart's concerto in C minor.

Mozart. Concerto in C minor.

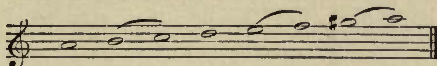


Occasionally the form of the scale with the sharpened sixth and seventh is found also in descending passages, as in the following passage from Handel's 7th Suite de Pièces.

Handel. Suite de Pièces, No. 7.

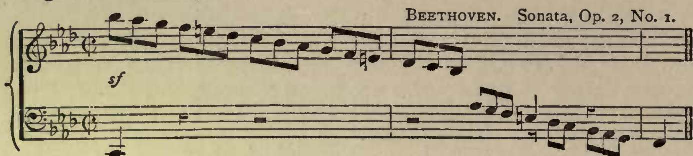


171. The form of minor scale most used in modern music is that described at the end of § 169, which is obtained from the Æolian scale by sharpening the seventh note, and which has the interval of an augmented 2nd between its sixth and seventh notes.



It will be seen that this form of the scale has three semitones; viz., between the 2nd and 3rd, the 5th and 6th, and the 7th and

8th degrees. The point in which all three forms of the minor scale agree is that they all have a semitone between the 2nd and 3rd degrees, and therefore a minor third between tonic and mediant. (§ 9.) This last given form of scale is very common in instrumental music, and not infrequent in modern vocal music. We give one example



172. As all the diatonic chords of the minor key are made with notes of the scale last given, this form is known as the *Harmonic* Minor Scale, the other two being called *Melodic* Minor Scales.* The leading note of every minor scale is always written as an accidental, because in the key-signature (as was shown in §§ 82, 85) the sharps or flats are always placed in the same order. If the leading note of A minor were indicated in the signature it would be written thus , and the signature of C minor would be . This would be extremely confusing, especially as the sixth and seventh notes of the minor scale are so frequently met with in two forms, and would in any case often require an accidental whichever way they were written. It is therefore more convenient to write the leading note with an accidental; but it must be particularly noticed that this note is nevertheless considered as a *diatonic* note in the key, and not as a *chromatic* note (§§ 72, 117).

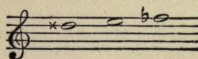
173. If we compare the harmonic form of the scale of A minor just given with the scale of C major (§ 9) it will be seen that six of its seven notes are the same. Only G is different; and as this note is to be written as an accidental whenever it occurs, it is clear that the keys of C major and A minor will have the same signature. A major and a minor scale which have six notes in common will always have the same key-signature; for this reason, and also because there is no other minor scale which possesses so many notes in common with a major one, such keys are called RELATIVE major and minor keys. The tonic of the relative minor of any major key is always a minor third *below* the tonic of that major; and conversely the tonic of the relative major of a minor key is always a minor third *above* the tonic of that minor. The major tonics have been given in §§ 82, 85; their relative minors are the following:

* Some writers call these forms of the minor scale "arbitrary"—an unfortunate word, as they are really older forms, and by no means merely arbitrary alterations.

Major keys.	Signature.	Relative minor keys.
C		A
G		E
D		B
A		F♯
E		C♯
B		G♯
F♯		D♯
C♯		A♯

Major keys.	Signature.	Relative minor keys.
F		D
B♭		G
E♭		C
A♭		F
D♭		B♭
G♭		E♭
C♭		A♭

174. It will be seen from the above table that what are called the "extreme keys," that is, the keys with many flats or sharps, have enharmonic equivalents (§ 52). Two notes are said to be "enharmonic" of one another when they are represented by the same sound on instruments, such as the piano, which have only twelve notes in the octave. As a matter of fact G♯ and A♭, if both were played exactly in tune would not be the same (§ 52); but the difference in pitch is so small that one note is used for both. Most music is written on what is called the *tempered* scale, that is, a scale in which every interval excepting the octave is slightly out of tune, but so little that it will serve to represent equally well two or three notes very slightly differing in pitch. Thus the three notes



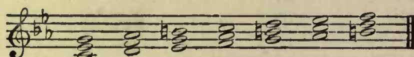
are all represented by the same sound on the piano. We cannot discuss at length the question of temperament, the necessity for which arises from the fact that the octave does not contain exactly twelve semitones; all that the student at present needs to know is the meaning of the term "enharmonic," the practical application of which will be seen later. It will be seen that the keys of B♮ and C♭, of F♯ and G♭, and of C♯ and D♭ are enharmonics of one another. (*See* §§ 83, 85.)

175. A major and a minor scale which begin upon the same key-note are called *Tonic Major and Minor scales*, and the keys to which these scales belong are called Tonic Major and Minor keys. By examining the table in § 173, the student will see that every major scale has three sharps more, or (which comes to the same thing) three flats fewer, than its tonic minor; and conversely that every minor key has three flats more or three sharps fewer than its tonic major. It is obvious that taking away a sharp and putting

on a flat produce the same result—that of lowering a note by a semitone.

176. As regards the harmonic basis of the keys, there is no connection whatever between any major key and its *relative* minor, while there is a very close connection between a major key and its *tonic* minor. The key of C minor, for instance, is derived from the three generators C, G, D, exactly like C major (§ 71), but a different selection of the harmonics is made for the diatonic notes of the scale. As the tonic is the foundation of the key, it would be hardly reasonable to use for the third of its chord so remote an upper-partial tone as the minor ninth of D (the 153rd harmonic of C); we therefore take *for this chord only* the 19th harmonic, E♭ (*see* table § 36) instead of the 5th harmonic, E♮. It has been already said (§ 168) that this is a matter of choice, not of necessity. In all the other harmonic combinations of the minor key—*i.e.*, in the dominant and supertonic discords to be treated later, we take the same E♭, (the 17th harmonic of D) as in the major key. As we have the same three generators, it is evident that the chromatic scale (§ 73) will be the same as in C major; but in selecting our notes for the diatonic scale we take a different series. From the table of relative scales we see that the signature of C minor contains the three flats B, E, and A. Of these B flat is raised to B♮ for the leading note; but E♭ and A♭ are always diatonic in the key. A♮ and B♭ are also, under certain circumstances to be later explained, treated as diatonic in the key; but for the present we take only the harmonic form of the scale. E♭ is, in the chord of the tonic its 19th harmonic, in other combinations the 17th harmonic of the supertonic; while A♭ is the 17th harmonic of the dominant.

177. In §§ 75, 76, we showed that every triad in a major key was found among the fundamental harmonies of the three generators in that key. The same is true of the triads of the minor key, which, as we shall see in the next chapter, differ in several respects from those which we have met with in the major. We conclude this chapter by showing the origin of each diatonic triad.



The *tonic chord* (C, E♭, G) consists of the fundamental tone, minor third, (19th harmonic), and fifth of the tonic.

The *supertonic chord* (D, F, A♭) consists of the fifth, seventh, and minor ninth of the dominant.

The *mediant chord* (E♭, G, B♮) is the minor thirteenth, fundamental tone, and major third of the dominant.

The *subdominant chord* (F, A♭, C) is the seventh, minor ninth, and eleventh of the dominant.

The *dominant chord* (G, B♮, D) is the fundamental tone, major third, and fifth of the dominant.

The *submediant chord* (A♭, C, E♭) is the minor ninth, eleventh, and minor thirteenth of the dominant.

The *diminished triad on the leading note* (B♮, D, F) is the major third, fifth, and seventh of the dominant.

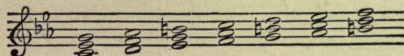
178. It will be seen that of all these chords only two, those on the dominant and the leading note, are identical with the diatonic chords of C major given in § 75. This is because they are the only two chords which do not contain either the third or the sixth of the scale, the two notes which differentiate the major and minor key.

CHAPTER VIII.

THE DIATONIC TRIADS OF A MINOR KEY AND THEIR INVERSIONS.

179. In the last chapter we showed the various forms of the minor scale, and it was said that the diatonic harmonies of the key were made from that form of the scale given in § 171. This statement may be accepted as correct in a general sense, though exceptionally, and especially in older music, chords will be found containing the major sixth of the scale; and in one case, as will be presently seen, the minor seventh can be used as part of a common chord. But it is none the less true that all the diatonic chords of the minor key in general use are composed of notes of the harmonic minor scale.

180. As in the major key (§ 122), each note of the minor scale can be taken as a root, and a diatonic triad placed above it. But if we do this, we shall find that the series of chords we shall obtain will differ widely from those on the corresponding degrees of the major scale.



181. If this series be compared with that of the major key (§ 122), it will be seen that the only chords which are identical are those of the dominant and leading note. Besides this, while the major key has six common chords, the minor has only four; of which the tonic and subdominant, which were major in the major key, are now minor, while the submediant chord, which was minor in the major key, is now major. It will also be noticed that the supertonic now bears a diminished triad, like the leading note, instead of a common chord; and the mediant has a chord of a kind which we have not yet met with, containing a major third and an *augmented* fifth. For this reason the chord on the mediant is called an *augmented triad.* As all augmented intervals are dissonant (§ 28), the augmented triad on the mediant is a discord; but, unlike the diminished triad, it is as dissonant in its first inversion as in its root position.

182. The distinctive effect of major and minor keys will be best perceived by the following example of what is known as a "convertible" chant—that is, one which can be sung in either a major or minor key by merely altering the character of the intervals.

DR. CHARD.

(a)

(b)

If these two forms of the chant are compared, it will be seen that every chord is identical, but that the effect produced by the two versions is entirely different. This, being a matter which concerns musical æsthetics rather than harmony, need not be enlarged upon here; but it is worth passing mention.

183. Like the diminished triad on the leading note of the major key, the corresponding chord in the minor key is rare in its root position. The diminished triad on the supertonic is however more frequently to be found in this form, as in the following examples, at ✱.

BACH. Toccata in F. MENDELSSOHN. "St. Paul."

(a) (b)

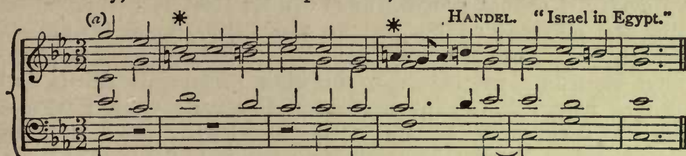
Though both these extracts are from pieces in major keys, it happens that both are here in the key of A minor. It will be seen that in each case the chord following the dissonance has a root a fourth above that of the dissonance itself. We shall find later, when we have to treat of dissonant chords, that this is a very frequent resolution for a discord.

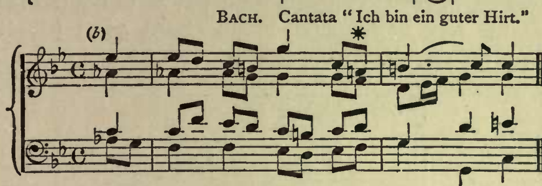
184. The augmented triad on the mediant is in reality an inversion of the chord of the dominant minor thirteenth (§ 410), and its harmonic origin has been shown in the last chapter (§ 177). Its special treatment will therefore be deferred till we come to treat of chords of the thirteenth; it will be sufficient to say now that when used merely as a mediant triad it is best followed by the chord of the submediant, the root (as in the case of the supertonic triad mentioned in the last paragraph) rising a fourth to the root of its resolution.

185. The reason for the treatment of the mediant chord as part of the dominant harmony while the chords of the subdominant and submediant, which are equally derived from the dominant (§ 177), are not necessarily considered in their relation to that note, probably arises from the fact that in the

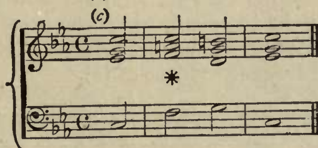
mediant chord the generator is always present, while the subdominant and submediant chords contain only some of the upper partial tones without the generator.

186. The interval of the augmented second between the sixth and seventh degrees of the minor scale being considered by the older composers to be unmelodic, we frequently find in the music of the last century the major sixth of the scale treated as a harmony note, and used in the chord of the subdominant and, more rarely, in that of the supertonic, instead of the minor sixth.



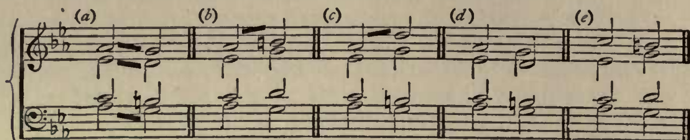


At (*a*) are two examples of the major chord on the subdominant, the first in three and the second in four part harmony. At (*b*) is the first inversion of a minor common chord (with the major sixth of the scale) on the supertonic. The last chord of this example will be explained presently (§ 193). These examples are given because of their historical importance, and are not intended for the imitation of the student. Our feeling of tonality is so much more definite than that which existed 150 years ago, at the time the passages just quoted were written, that the major sixth of the scale produces a disturbing effect on the key unless very carefully managed. It is therefore better avoided, and it is especially unpleasant when the subdominant chord comes between the tonic and the dominant, as at (*c*).

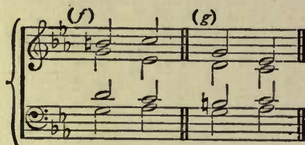


187. The general rules for the progression of parts and the doubling of notes already given apply equally to the minor and to the major key; but there is one very important rule in addition, which concerns the minor key exclusively. We often meet with the progression from dominant to submediant, or the reverse, from submediant to dominant. In § 130 it was said that the root was the best note to double; but if we double the root in the

submediant chord of a minor key when it is followed by the dominant chord, we shall find ourselves in difficulties.

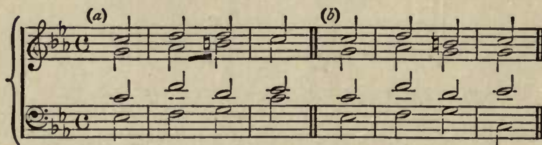


We evidently cannot proceed as at (*a*), for this gives consecutive fifths and octaves; neither can we avoid these as at (*b*) or (*c*), because an augmented interval in the melody is seldom good unless both the notes belong to the same harmony, which is not the case here. At (*d*) the treble and alto parts cross, which is bad, and besides this we still have distinctly the effect of fifths and octaves as at (*a*). The only right way is to double the third instead of the root in the submediant chord, as at (*e*). In the same way, if the dominant chord comes first, as at (*f*) (*g*),



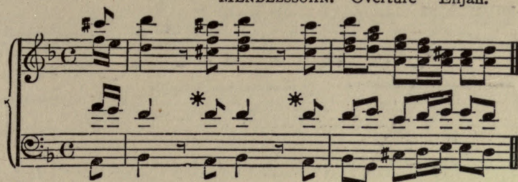
it will equally be needful to double the third in the second chord. It will sometimes be found expedient when the first inversion of the subdominant chord (having the submediant in the bass) precedes or follows the dominant chord, also to double the third of the bass note—in this case the fifth from the root. The rule, which must be most carefully observed, is this: *Whenever in a minor key the chord of the dominant precedes or follows that of the submediant, the third (and not the root) must be doubled in the submediant chord.*

188. All the diatonic triads of the minor key, like those of the major, can be used in their first inversion. The general rules given in the sixth chapter (§§ 156, 157) are still to be observed, and care must be taken to avoid, wherever possible, the interval of the augmented second. Thus the following progression at (*a*) is faulty, and should be corrected as at (*b*).



189. The chord of the mediant is probably more common in its first inversion than in its root position, and, as already said (§ 184), when not treated as a dominant thirteenth, it is best followed by the chord of the submediant.

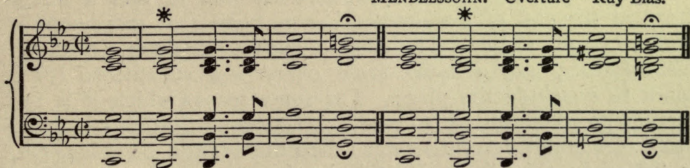
Mendelssohn. Overture "Elijah."



At * is the first inversion of the mediant chord in D minor, resolved on the root position of the submediant.

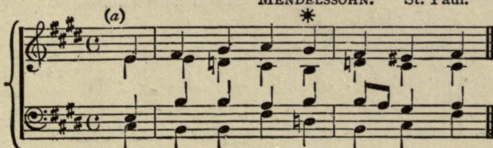
190. In addition to the first inversions of all the triads given in § 180, there is one first inversion to be met with under special conditions with which we have not yet made acquaintance. If the bass moves by step from tonic down to submediant it sometimes takes the *minor seventh* of the scale on its way instead of the leading note; and *in this case only* (but not in the reverse direction) the minor seventh is allowed to bear a first inversion. This chord in its root position would be a minor chord on the dominant. In such a form it is absolutely forbidden; and it is only allowed when preceded by the tonic in the bass and also followed by the note below; either of these notes may, however, bear a chord either in root position or in an inversion. The following is an excellent example of the employment of this chord. It will be seen that on the second occurrence of the chord the bass descends a semitone, instead of a tone, to a supertonic discord in the second inversion.

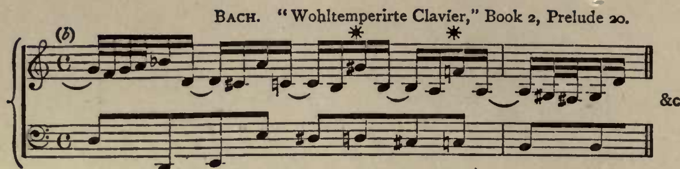
Mendelssohn. Overture "Ruy Blas."



191. All the triads of the minor key can be used in their second inversion; but, as in the major, those of the tonic, subdominant and dominant chords are by far the most common. It is needless to give a complete set of examples, as we did with the major key; but a few of the rarer second inversions will be interesting.

Mendelssohn. "St. Paul."

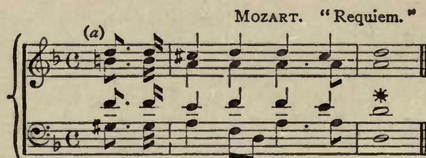




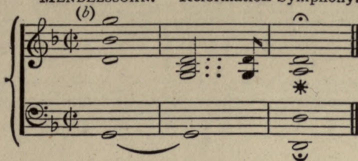
At (*a*) is seen the second inversion of the diminished triad on the supertonic of F sharp minor. The exceptional leap of the bass from this chord to the next is justified by the fact that both supertonic and subdominant chords are really part of the fundamental harmony of the dominant (§ 177), and the bass of a second inversion is allowed to leap to another note of the same harmony (§ 165).

192. The examples at (*b*) of the last paragraph will require a little explanation. It must be pointed out that when two or more notes of a chord are taken in arpeggio, as is so often the case in pianoforte music, the harmony they produce is the same as if they had been sounded together. In this passage the G♯ and B form the chord above D, and the F and A that above C♮, just as if the upper notes were played together as quavers. The chords marked * are therefore the second inversions of the triad on the leading note, and of the common chord on the submediant. It will be seen that the bass of each second inversion moves by step, in conformity to the first rule given in § 165. The D♯ and C♯ in the bass are both *chromatic* notes in the key, and their use will be explained later.

193. In old music it is comparatively rare to find a minor chord at the end of a movement, even when that movement is written in a minor key. The effect of such a close was considered unsatisfactory, and a *major* tonic chord was substituted for a minor to conclude the piece. For some reason which it is impossible to ascertain with certainty, the major third in the final chord of a minor movement was called the TIERCE DE PICARDIE, or "Picardy third." It is still not infrequently employed, especially in church music; and, in this connection *only*, the major third is not considered as a chromatic note in the minor key. The student will see an excellent example of the employment of this chord in the extract from Bach given at (*b*) in § 186. Occasionally also the third is omitted altogether, and the piece ends with a bare fifth, as in the following examples:—



Mendelssohn. "Reformation Symphony."



194. The real reason of the aversion of the old composers to ending a piece with a minor third was doubtless that, as it is not a part of the compound tone (§ 40) of the tonic, it produces beats with the major third, which is often distinctly audible in that compound tone. If on a good piano we play the note C in three octaves thus, and listen carefully, the E♮ can be distinctly heard. Now, if the minor third above the upper of the three C's be also sounded, the jarring of the E♭ against the E♮ is quite perceptible to anyone whose ear is at all trained to analysing sounds. Modern music deals so much more freely with dissonances than did ancient, that our ears are far less sensitive to harmonic impurity than the ears of our forefathers; hence we do not feel the ill effect of a final minor chord to the same extent as they did.

Exercises to Chapter VIII.

Treble and Bass given. Add Alto and Tenor.

(I.)

(II.)

Bass only given. Add three upper parts.

(III.)

(IV.)

(V.)

(VI.)

(VII.)

(VIII.)

(IX.) Double Chant.

(X.) Hymn Tune.

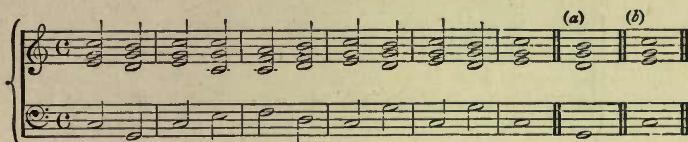
(*a*)

(*a*) In harmonising this progression it will be necessary to take the leading note in the first chord of the bar down to the fifth, instead of up to the tonic, or it will be impossible to preserve the sequence (§ 137). The leading note must, of course, not be in the upper part (§ 132). The exceptional fall to the fifth of the tonic chord is here justified by the sequential character of the passage.

CHAPTER IX.

THE CHORD OF THE DOMINANT SEVENTH.

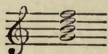
195. If the student will take a simple progression of the diatonic triads with which he is already acquainted, and will observe the mental effect which they produce, he will find that the character of tonic and dominant harmony is quite different. Let him, for instance, play on the piano the following passage, *stopping at the first double bar.*



It will be felt that the effect of the alternation of tonic and dominant chords *ending with a tonic chord* is one of completeness; we require nothing to follow. Now let him play the passage again adding the chord at (*a*). The feeling of finality is gone; one requires something else to succeed; but if (*b*) is played after (*a*), the reposeful feeling is restored. From this it will be seen that the dominant chord of a key is not fitted for concluding a piece, but that, as compared with the tonic chord, its effect is one of incompleteness. In their relation to one another we may say of these two chords what was said (§ 18) of consonance and dissonance—that the tonic chord is a chord of rest, and the dominant a chord of unrest.

196. The difference in the character of these two chords no doubt arises from the fact that the dominant chord is generated out of the tonic (§ 67), and has therefore a natural tendency to return finally to it. (Compare § 57.)

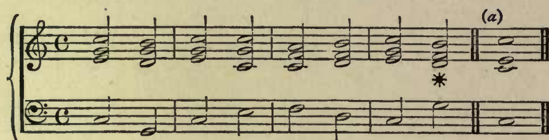
197. Hitherto all the chords we have used have been *triads*, that is, combinations of three notes made by placing two thirds one above another. If we place another third on the top of a triad, it is evident that this third will be a seventh from the root. Such a chord will be called a Chord of the Seventh. Of all the possible chords of the seventh, that on the dominant is the most frequently used, and the most important.



In this chord the dominant is not only the root, but also the generator (§ 58, *note*). It will be necessary as we proceed to

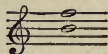
consider it in both these aspects. It is very important that the student should thoroughly grasp the fact that the intervals of this chord are *a major third*, *a perfect fifth*, and *a minor seventh* from the generator. We here meet for the first time with a "fundamental discord" (§ 61), that is, a discord composed of the harmonics of the fundamental tone or *generator*. The upper notes of a fundamental discord are in some cases variable; but every such discord always contains as its thirds next above the generator the notes which make the three intervals just specified. The chord of the seventh is simply figured 7, the fifth and third being implied (as in the common chord) unless one of these notes requires an accidental.

198. If we substitute for one of the dominant chords of the passage in § 195 a chord of the dominant seventh (*)

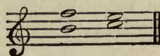


the feeling of unrest which was before to some extent noticeable becomes intensified. It is no longer possible to end on it, because the interval of a seventh is always a dissonance (§ 17), and therefore requires *resolution*—that is, to be followed by a consonance, as at (*a*) above.

199. If we examine the chord of the seventh given in § 197, we shall see that in addition to the seventh from the root there is another dissonance in the chord, namely the diminished fifth between the third and the seventh.



It is this interval which determines the resolution of the discord, that is, the way in which these two notes shall move with regard to one another. The general rule governing the progression is that *two notes forming a diminished interval have a tendency to approach one another.* In the present case the third of the chord, being the leading note, rises a second, and the seventh falls a second.

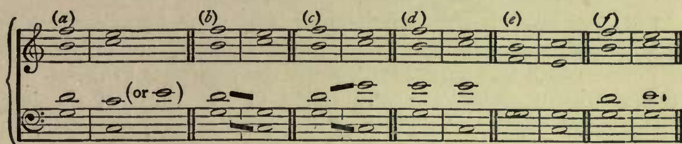


If the key of the piece were C minor, the seventh would fall a tone, to E♭, instead of only a semitone. But if the chord were taken in a different position, and the seventh were below the third, the interval of the diminished fifth, being now inverted,

would become an augmented fourth (§ 31), and *two notes forming an augmented interval have a tendency to diverge.* This will be seen in the treble and alto parts of the last two chords of the passage in § 198.
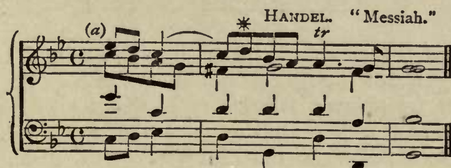
200. The chord of the seventh is very frequently found with all its four notes present; but the fifth is sometimes omitted, and in this case the root is doubled. Neither the third nor the seventh of the chord can be doubled, because the progression of both notes is fixed, and if one of them appear in two voices, we shall either get consecutive octaves or unisons, if both move correctly, or else one of them must move wrongly.

201. Let us now take the chord of the dominant seventh, and resolve it on the tonic chord—its most usual resolution.



Here the root of the chord, except at (*f*), falls a fifth (or rises a fourth) to the tonic; the third rises a semitone; the seventh falls one degree to the third of the next chord; and the fifth either rises or falls one degree—*see* (*a*). When the root falls a fifth, the fifth in the chord of the seventh cannot go to the fifth of the tonic chord, or we shall have consecutive fifths, either by similar motion, as at (*b*), or by contrary motion, as at (*c*). Hence we get a rule that *if the fifth is present in the chord of the dominant seventh, it must be omitted in the following tonic chord.* If it is especially desired to have the fifth in the tonic chord, the root must be doubled and the fifth omitted in the chord of the seventh, as at (*d*) (*e*). In the not infrequent case when the dominant seventh resolves on the *second inversion* of the tonic chord, as at (*f*), the fifth can evidently be present in the chord of the seventh without producing consecutives. Here the rule just given does not apply; the fourth or sixth may also be sometimes doubled. Examples of the ordinary resolution on the root position of the tonic chord will be found at § 100 (*c*), § 108 (*b*), and § 160 (*b*).

202. It is not uncommon for another note of the chord—either the root or the fifth—to be interposed between the seventh and its resolution, as in the following examples :—



HANDEL. "Samson."

(*b*)

WEBER. "Euryanthe."

(*c*)

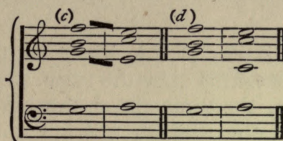
At (*a*) the seventh rises to the root, while the harmony remains unchanged, and then descends to the third of the next chord. At (*b*) the seventh falls to the fifth, while the root rises to the third of the dominant chord, the fifth rising to the third of the tonic chord—the regular resolution of the seventh—on the change of harmony. Such a progression is called an *ornamental* resolution of a dissonance. The example (*c*) shows at * the same treatment of the seventh seen at (*a*); but it is also interesting as illustrating in the first two quavers of the second bar the resolution of the chord on the second inversion of the tonic chord, referred to in the last section. Notice also that at the third quaver of this bar the fifth of the chord is doubled, and the third does not appear till the ornamental resolution of the seventh. This is doubtless for the sake of making the alto part more melodious.

203. In addition to the resolution of the dominant seventh on the tonic chord, several other resolutions are possible. The most common of these is the resolution on the chord of the *submediant*. In this case the root rises one degree, instead of a fourth, the third and seventh move, as before, by step, the former upwards and the latter downwards; but the fifth, instead of being as before free to rise or fall one degree (§ 201), must fall to the third, as at (*a*), or we shall have consecutive fifths with the root, as at (*b*) below.

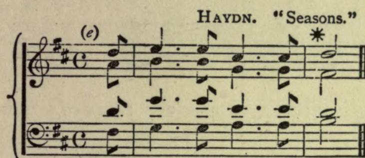
(*a*) (*b*)

If the fifth of the chord of the seventh be omitted and the root doubled, it will still be bad to double the fifth in the submediant chord, as at (*c*) below; for this gives the worst kind of hidden octaves between treble and tenor (*see* § 104). It is equally impossible to double the root, for this would make consecutive

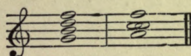
octaves with the bass. Hence a general rule: *Whenever the dominant seventh is resolved on the submediant chord, the third of the latter chord must be doubled.* This, of course, refers, like our other rules, to four-part harmony. Note that the doubled third of the submediant chord is the *key-note.*



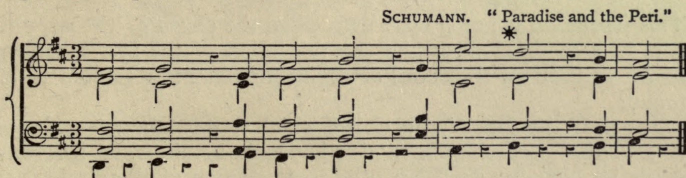
This resolution is of such frequent occurrence that we need only give one example of it here.



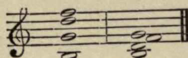
204. Another resolution of the chord of the dominant seventh, less common than the one just noticed, but still not so rare as to be exceptional, is on the first inversion of the chord of the subdominant.



Here the seventh, instead of falling, as in the cases hitherto noticed, remains to be the root of the next chord; the third rises by step, as before, the fifth falls one degree, and the root rises one degree to the third of the next chord. The following is a good example of this resolution :—



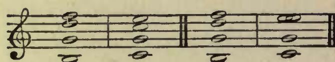
205. As a chord of the seventh contains three notes besides the root, it must of course be susceptible of three inversions. The first inversion has the third in the bass.



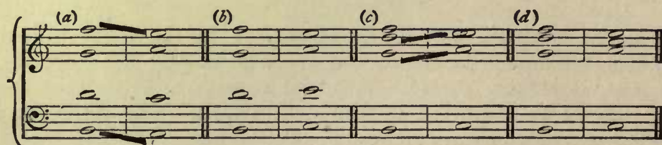
It is evident that the root and the fifth of the chord will now be

respectively the sixth and third above the bass, as in the first inversion of a common chord. The seventh will be a fifth above the bass, and the full figuring of the chord will be $\begin{smallmatrix}6\\5\\3\end{smallmatrix}$. The figure 3 is however omitted, as in the chord of the sixth (§ 153), except when it requires an accidental, and the chord is usually figured only $\begin{smallmatrix}6\\5\end{smallmatrix}$.

206. In the resolution of this inversion, the dissonant notes (the third and the seventh) obey the rules already given. If the chord be resolved on the tonic chord, the bass (the leading note) will rise a semitone, the seventh will fall one degree, the sixth (the root of the chord) will remain as the fifth of the following chord, and the third (the fifth of the chord) will either rise or fall one degree.

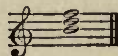


If the first inversion of the dominant resolve upon the submediant chord, the latter must also be in the first inversion, because the leading note in the bass must rise. If it falls, as at (*a*) below, we shall have a diminished fifth followed by a perfect fifth—a progression which is forbidden (§ 101) between the bass and an upper part. The seventh will fall, as before, the root will rise one degree, and the fifth of the chord, *if below the root*, as at (*b*), may either rise or fall one degree. But if the fifth be above the root, it must fall, as at (*d*) to avoid consecutive fifths as at (*c*).



This resolution is much rarer than when the chord of the seventh is in its root position; while the resolution of the first inversion of the seventh on the chord of the subdominant is seldom to be found.

207. If the root of this chord, which it must be remembered is also the generator, be omitted, which in the first inversion rarely happens, we shall have the root position of the diminished triad on the leading note (§ 123).



This triad is therefore in reality the chord of the dominant seventh, *without the generator;* and it must be remembered that it is still impossible to double either the root or the fifth, the

former because it is the leading note of the key, and the latter because, being dissonant with the bass of the chord, it has a fixed progression, which was shown in § 199. The rules for the treatment of this dissonance apply equally whether the generator be present or absent. The only note which can be doubled in this position will be the third above the leading note—the fifth of the original chord.

208. We now give a few examples from the great masters of the use of the first inversion of the dominant seventh, both with and without the generator.

(a) GRAUN. "Te Deum."

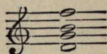
(b) HAYDN. Quartet, Op. 20, No. 5.

(c) BACH. "Siehe welch' eine Liebe."

(d) BACH. "Johannes Passion."

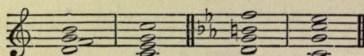
The first two of these examples (*a*) and (*b*), show the usual form and treatment of the chord, and need no further explanation. At (*c*) is a rarer use, the generator being omitted, and the chord, as said above, appearing as the diminished triad on the leading note. It will be noticed that both here and at (*d*) the third above the bass is the note doubled. Example (*d*) is further interesting as containing in its last chord a good example of the "Tierce de Picardie" (§ 193), and also as illustrating Bach's partiality, referred to in § 132, to making the leading note, when in a middle voice, fall to the fifth of the final chord, no doubt for the sake of having the last chord in a complete form. (Compare § 134.)

209. The second inversion of the chord of the dominant seventh has the fifth in the bass.



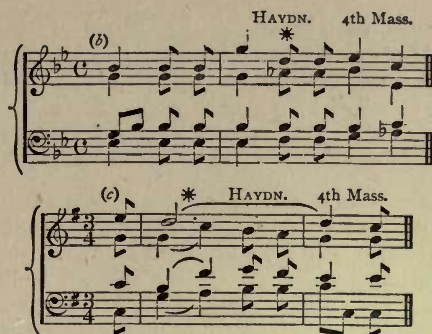
The root and third of the chord are now (as in the second inversion of a common chord) the fourth and sixth respectively above the bass; and the seventh is now the third above the bass. The chord will therefore be figured $\substack{6\\4\\3}$. Evidently the figure 3 (the seventh of the chord) cannot be omitted, or we shall have no means of distinguishing the chord from a $\substack{6\\4}$; but the 6 can be dispensed with, and the chord is often figured $\substack{4\\3}$, the sixth being implied. In a minor key, in which the leading note bears an accidental, the sixth must always be marked, and is written ♯6 or ♮6, according to the key;—sometimes also $\not{6}$.

210. The second inversion, like the first, is rarely resolved otherwise than on the tonic chord. It is most often resolved on the root position of that chord; and in this case the seventh (the third of the chord) falls one degree, the leading note (the sixth of the chord) rises a semitone, the root remains stationary, becoming the fifth of the next chord, and the bass falls one degree.



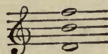
211. There is another resolution of this inversion on the tonic chord. The bass, instead of falling to the root of the tonic chord, may rise to its third, and it is important to remember that in this case the seventh (the third from the bass) may either fall to the third, or rise to the fifth of the tonic. The following examples will illustrate these resolutions.

(*a*) Cramer. Studio, No. 33.
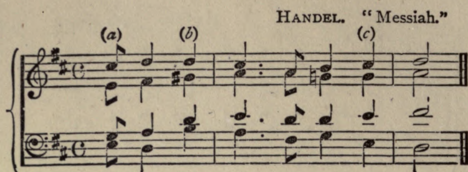


At (*a*) both treatments of the inversion are shown. The first (∗) is in the key of F, the bass rising to the third of the tonic, and the seventh to the fifth. The ornamentation of the C in the tenor by a kind of shake with B♮ does not affect the harmony. B♮ is what is called an "auxiliary note," as will be explained in a subsequent chapter. At ∗∗ is the second inversion of the dominant seventh in G minor. Here the bass descends to the root of the tonic chord; the seventh therefore also descends to the third of the chord. At (*b*) and (*c*) are two passages chosen from the same work, to show the different treatment of this inversion according to the position of the notes. In both cases the bass rises to the third of the tonic chord; at (*b*) the seventh rises to the fifth of the chord, but at (*c*) it falls to the third. If it rose here, we should have the objectionable progression from the second to the unison between alto and treble (§ 109). It is true that this progression is not infrequently met with in this resolution of the second inversion; but the student will do well not to let the seventh rise except when it is at the distance of at least a seventh from the root
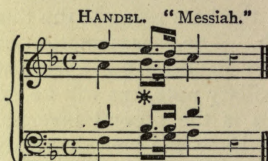
212. Unlike the first inversion, the second inversion of the dominant seventh is very frequently found without the generator. It would indeed be hardly too much to say that the generator is more often omitted than not. In this form the chord becomes the first inversion of the diminished triad on the leading note.



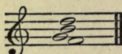
It is then merely figured 6, like any other first inversion. It was said in § 155 that though the F and B are still dissonant to one another, they are both consonant to the bass note. As the generator of the chord (G), toward which the seventh must fall, is no longer present, the seventh is not restricted in its progression, and may either rise or fall. It may also be doubled, in which case one of the sevenths rises, and the other falls. The leading note cannot, of course, be doubled.



This short extract contains three second inversions, in each case without the generator, which Handel very rarely introduces in this position of the chord. At (*a*) and (*c*) the bass is doubled, and the seventh rises in each case. At (*b*) the seventh is doubled, one rising and the other falling. One of the sevenths may also leap to another note of the next chord, as in the following. The D here is only a passing note, and does not change the harmony.

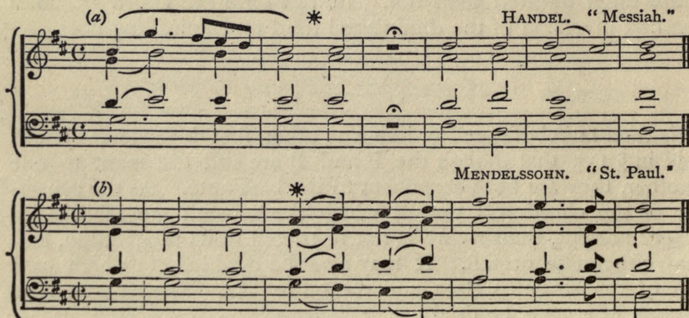


213. The third, and last, inversion of the dominant seventh has the seventh in the bass.



The root, third, and fifth of the original chord are now respectively the second, fourth, and sixth above the bass; and this inversion is therefore figured $\begin{smallmatrix}6\\4\\2\end{smallmatrix}$, more frequently $\begin{smallmatrix}4\\2\end{smallmatrix}$, and occasionally 2 only. The seventh, as in other cases, descends one degree, and the third ascends.

214. By far the most frequent resolution of this inversion is on the first inversion of the tonic chord; but it is also occasionally resolved on the second inversion of the submediant chord.

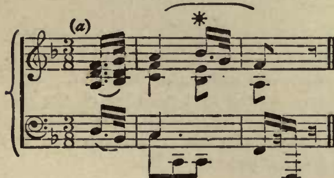


At (*a*) will be seen the resolution on the tonic chord, a rest being introduced between the discord and its resolution. The mental effect of rests must never be forgotten by the student; the last note or last chord preceding a rest is retained by the mind until the following note of the harmony. At (*b*) this inversion of the seventh is followed by the second inversion of the submediant, which, it will be seen, obeys the law for the treatment of second inversions given in § 165, Rule I.

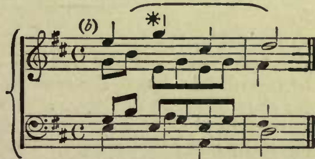
215. It is very rare in four-part harmony to find the generator omitted in this inversion. This will give us the second inversion of the diminished triad on the leading note (§ 163). An example of this form of the chord has already been given at § 160 (*h*).

216. A very important point to be noticed with regard to the treatment of fundamental discords is that the dissonant notes may be transferred from one part of the harmony to another, provided that they are properly resolved in the part in which they last appear. In this case the seventh is not infrequently doubled even when the generator is present, one of the sevenths leaping to another note of the chord, and the other receiving its regular resolution. (*See* (*a*) (*b*) below.) But it is best when one of the dissonant notes (the third or the seventh) has been transferred to the *bass*, not to change its position again, but to resolve it in that voice, as at (*c*) (*d*) below. (See also in illustration of this the first bar of the extract from Schumann in § 204.)
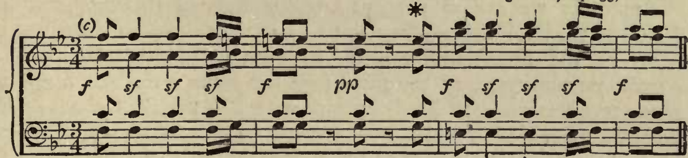
Beethoven. Andante in F.
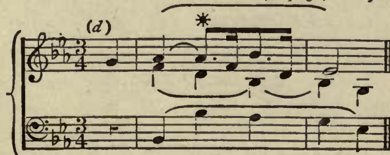


Beethoven. Symphony in D.



Haydn. Quartet, Op. 33, No. 2.



Beethoven. Sonata, Op. 30, No. 3.



217. A few exceptional resolutions of the chord of the dominant seventh are to be found, especially in the works of Handel. One of these, in which the chord is followed by a chord of the seventh on the subdominant, has been already noticed (§ 108) and examples given of it. We add a few others here not as models for the student's imitation, but for the sake of completeness.

HANDEL. "Messiah."

(*a*)

(*b*) HANDEL. "L'Allegro."

(*c*) HANDEL. "Samson.

At (*a*) the mediant chord, with the fifth omitted, is interposed between the chord of the seventh and its regular resolution on the submediant. This may be regarded as akin to the ornamental resolutions spoken of in § 202. At (*b*) the third inversion of the seventh is resolved on the root position of the tonic chord instead of on its first inversion; and at (*c*) the seventh is irregularly resolved by rising to the root. The progressions (*b*) and (*c*) are rarely if ever met with excepting in the accompaniment of recitative.

218. As we are at present treating only of diatonic chords, we defer till later the explanation of the various chromatic resolutions of the dominant seventh, in which the seventh rises a chromatic semitone, or the third falls the same interval. Some of these progressions will be dealt with when, in the next chapter, we have to speak of modulation; others will be more suitably examined in connection with the chromatic chords of a key.

219. The great importance of the chord of the dominant seventh is largely due to the fact that *when followed by the tonic chord it absolutely defines the key.* For instance, the two chords

might be either dominant and tonic in C, or (if they were not the

final chords of a piece) tonic and subdominant in G. But if we add the seventh to the first chord,

the passage can only be in C; for though the first chord might be a chromatic chord in G, it would in that case, as will be seen later, have a different resolution; and the fact that it is followed by the chord of C proves that it is a dominant seventh resolved on the tonic. We shall learn more of this in a later chapter.

Exercises to Chapter IX.

[We shall in future give only the bass of the exercises. The pupil will by this time have gained sufficient experience to be able to dispense with the additional aid afforded by our giving the treble also.]

(I.)

(II.)

(III.)

(IV.)

(V.)

(a)

(VI.)

(VII.)

(VIII.)

(IX.) Double Chant.

(X.) Hymn Tune.

(*a*) A line placed after a figure shows that the note indicated by that figure is to be continued during the following note. Here C♯ must be a semibreve, while A and G (8 and 7) are minims. The lines in bar 6 of this exercise indicate that the whole chord is to be continued, or repeated, over the next bass note.

CHAPTER X.

KEY RELATIONSHIP—MODULATION TO NEARLY RELATED KEYS—FALSE RELATION.

220. If all music remained in one key the resources at the disposal of the composer would be very limited, and the effect would soon become extremely monotonous. In all pieces therefore of more than a few bars' length, changes of key are introduced, a new note being taken as the tonic for a time, and a return being subsequently made to the original key. Every piece must end with the same note as a tonic with which it begins, though the *mode* of the key may be, and often is, changed from major to minor, or *vice versâ.* A change of key is called a MODULATION. Some writers use the term "Transition," when the modulation is to a remote or unrelated key (§ 225), but the distinction is not always made, and the word "Modulation" will suffice for all purposes.

221. The first question to be answered is, which keys are the best to modulate into, and why do some modulations sound more natural than others? The answer to this question depends on what is known as *Key Relationship*, which we shall now proceed to explain.

222. It was said in § 30 that two notes are consonant to one another when two of their earlier upper partial tones coincide. The earlier the coincidence of these partials, the more perfect the consonance. In the same way, two common chords are said to be related to one another when they have one note in common. But a moment's thought will show that this is only possible when the roots of the two chords are consonant. For if we take two notes which are dissonant to one another (for instance C and D, or C and B), it is quite clear that their common chords must consist of entirely different notes. On the other hand, any two notes which are consonant with one another will have a note of their chords (either root, third, or fifth) in common. Thus C and E flat have G as part of their common chords, C and A flat have C, and C and G have G in common.

223. Two major keys are said to be related to one another when their tonics are consonant, and the more perfect the consonance, the nearer the relationship. Thus F and G are both perfect fifths from C, the former below and the latter above. These therefore are the nearest related major keys to C. The imperfect consonances, the major and minor thirds and sixths, are also related, but more distantly: they stand in the second degree of relationship. For the present we deal only with the most nearly related keys.

224. It was shown in Chapters II. and III. that G was the first new note generated from C, and that all its harmonics were secondary harmonics of C. It is therefore clear that if we take G as a tonic and develop the chords of a key from it as we did from C, we shall have a key derived in the second degree from C. Similarly, C being itself the third harmonic of its fifth below, namely F, the whole key of C must be a derivative from F. Hence these keys are the nearest related to C, the dominant as a generat*ed* and the subdominant as a generat*ing* key.

225. Two keys whose tonics are dissonant with one another are said to be unrelated; and if the tonics are a semitone apart, or are distant an augmented or diminished interval from each other, such keys are often spoken of as "remote." Modulation to unrelated or remote keys will be dealt with later.

226. If we examine two closely related major keys (*e.g.*, C and G, or C and F), we shall see that, excepting in one note, their diatonic scales are identical. Thus, the only note which differs in the scales of C and G is F, and in the scales of C and F, B (§ 81, 85). Therefore every common chord in the key of C which does not contain the note F also belongs to the key of G; and every chord in the key of C which does not contain B belongs also to F. An examination of the table of the triads of C given in § 122 will show us that there are four chords common to the keys of C and G, and that there are also four common to the keys of C and F.

227. If we now compare the major scale of C in § 121 with the harmonic form of the relative minor (A minor) given in § 171, we shall see that here also all the notes of the scale are identical with one exception—G. The key of A minor therefore, like G and F, contains four chords in common with the key of C; and for this reason (though none of its chords, even though they look identical, are derived from the same generators) a relative minor key is considered to be one of the nearly related keys to its relative major. Similarly, the relative minors of the dominant and subdominant keys, being so closely connected with their relative majors, are regarded as among the nearly related keys to the tonic. We thus obtain the following table of nearly related keys, in which we place the sharper keys to the right and the flatter to the left of the tonic.

Table of nearly related keys.

F major.	C MAJOR.	G major.
D minor.	A minor.	E minor.

228. If we take any minor key as a starting point, we shall get a similar series; but with this difference, that nearly related minor keys have fewer notes, and therefore fewer chords, in common, than nearly related major keys. But the relations of their tonics to one another will be similar; and the nearly related keys to A minor will therefore be:

D minor	A MINOR	E minor.
F major.	C major.	G major.

Putting the matter concisely and as a general rule, it may be said, that, *the nearest related keys to any major key are its dominant and subdominant, and the relative minors of these three keys; and the nearest related keys to any minor key are its dominant and subdominant minors, and the relative majors of these three keys.*

229. A modulation to a nearly related key is effected by introducing a chord containing a note belonging to the new key, but foreign to that which we are leaving, and by following that chord by other chords defining and fixing the new key. This last condition is essential, because *no single chord can ever define a key.* Suppose, for instance, that we wish to modulate from C to G. Naturally we think of using the chord of D major (), as being the dominant chord of the new key. But the introduction of this chord alone is quite insufficient; for the same chord may also be the dominant of G minor, the tonic of D major, the subdominant of A major, or the submediant of F♯ minor; and it would be quite possible to follow it by harmony in any of these keys. If we take the dominant 7th on D (adding C♮ to the above chord), we restrict our choice considerably; but this chord may still be either in G minor or G major, and only the context will show us which. To determine any key, at least two chords, and sometimes more, must be regarded in their relation to one another.

230. It was said in § 152 that a common chord in its root position was not figured unless one of the notes required an accidental. In the case of a modulation without a change of key-signature, it would be needful to indicate the chromatic alteration of the third in the chord of the new dominant. Supposing the key of the piece to be C, and we are modulating to G by means of the chord of D major, as in the last paragraph, the D in the bass would be figured thus ♯. (For the explanation of the ♯ without a figure at the side of it, see § 153.) If the modulation were effected by means of the dominant seventh of the new key, the bass note would be figured 7 ♯

231. A modulation can either be effected immediately—that is to say by introducing a characteristic chord of the new key directly after a chord characteristic of that which we are leaving—or it can be effected gradually—that is by interposing between the characteristic chords of the two keys chords which are common to both. If an abrupt effect is desired, the former plan will be adopted; but the latter is smoother and sometimes more natural. The larger the number of ambiguous chords (that is chords which belong to both keys, and therefore leave the tonality doubtful)

introduced, the more gradual will be the modulation. Let the student compare the following passages:

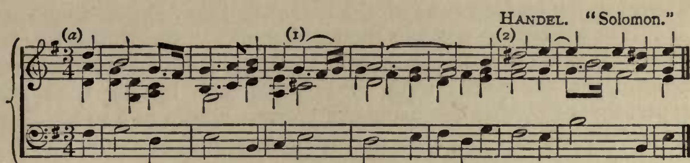
The first bar and the last two of each passage are identical; but at (*a*) the chord containing F♯ follows immediately on one containing F♮, while at (*b*) six ambiguous chords, belonging to both the keys of C and G, are introduced before the new key is established at ✱. The effect of the latter modulation is therefore smoother than that of the former.

232. In modulating from a major key to the supertonic minor it is necessary to avoid putting the dominant chords of the two keys too near one another. This is because the dominant of the first key is the subdominant of the second, and its chord would be a *major* chord on the subdominant of the minor key. If these two chords come next to one another we shall have the very unpleasant progression shown at (*c*) § 186. It is therefore usually advisable in making this modulation to introduce the minor sixth of the new key before introducing its leading note.

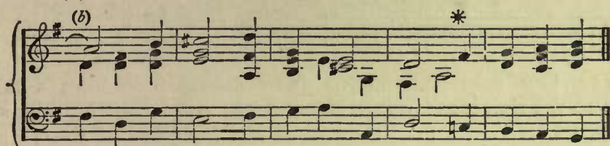
233. If we compare any minor key with the minor keys of its dominant and subdominant, it will be seen that of all the diatonic triads there is only one in common to each pair of keys. For instance, the only chord common to C minor and G minor is the tonic chord of the former, while the only chord common to C minor and F minor is the tonic chord of the latter. For this reason, while the most frequent modulations for a major key are to the other nearly related major keys, a minor key most often modulates to one of the related major keys, either its relative major, with which it has four chords in common, or its submediant major (the relative major of its subdominant), with which it has three.

234. The number of chords common to two nearly related keys is largely increased by the addition of chromatic chords, which will be treated of in subsequent chapters. But even without using these, considerable variety is possible, since the diatonic chords can be employed in their inversions as well as in their root positions.

235. We shall now give some examples, from the works of the great masters, of modulation into nearly related keys, with such remarks as may help the student to understand the way in which they are managed.

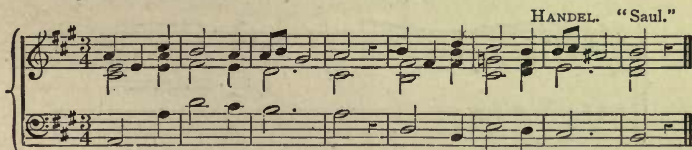


This passage shows us at (1) a modulation to the dominant effected abruptly, by introducing C♯ immediately after C♮. From D the music modulates to E minor at (2) by taking the first inversion of the chord of E minor as the supertonic of D, and leaving it as the tonic of the new key, following it by a cadence in E minor, with the chord of the dominant seventh fixing the key (§ 219). On the repetition of the phrase, the passage is varied from the fifth bar as at (*b*).



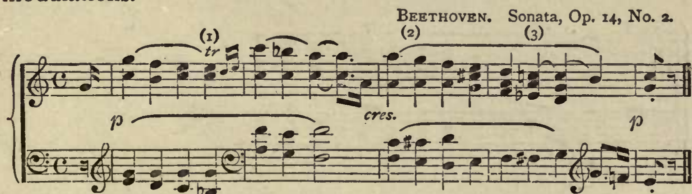
The music now remains in D, coming to a full close in that key, and the return to G is made by flattening the leading note of D at * and thus making it the subdominant of G (§ 86).

236. The following extract illustrates what was said in § 232 with regard to the modulation to the supertonic minor key.



Here the modulation is effected by taking at the fifth bar the supertonic chord of A and leaving it as the tonic chord of B minor. Let it be noticed that G♮, the minor sixth of the new key, is introduced before A♯, its leading note.

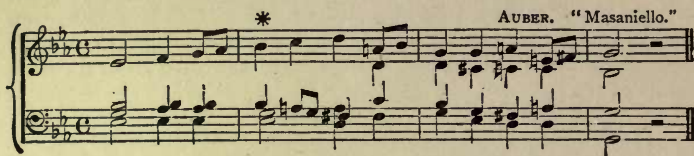
237. In the passage now to be given we find some other modulations.



At (1) is a modulation to the key of F, the subdominant, by

flattening the leading note of the key of C. At (2) the dominant of F is sharpened to become the leading note of its relative minor. From D minor the music returns to C at (3) by taking the first note of the bar as the tonic of D minor and leaving it as the supertonic of C, thus reversing the process shown in § 236. The second chord of this bar is a chromatic chord in the key of C, which will be explained later.

238. A modulation from a major key to its mediant minor is usually made by treating the tonic chord of the first key as the submediant chord of the second, and following it accordingly, as below.



239. Our next illustrations show modulations from a minor tonic to the dominant minor (*a*) and the subdominant minor (*b*). The key is changed in each case at the third bar of the extract; at (*a*) by treating the previous tonic as a subdominant; and at (*b*) by the reverse process, the first inversion of the subdominant being here left as the first inversion of the new tonic. It should be mentioned that the A♯ in the third bar of (*b*) is not a harmony note, but an auxiliary note.

Mendelssohn. "Im Herbst," Op. 9, No. 5.

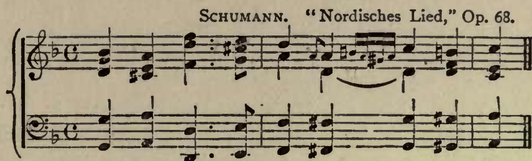
(*a*)

Haydn. Sonata in A.

(*b*) *fz p* *tr* *mf*

240. Our last example will show a modulation from a tonic

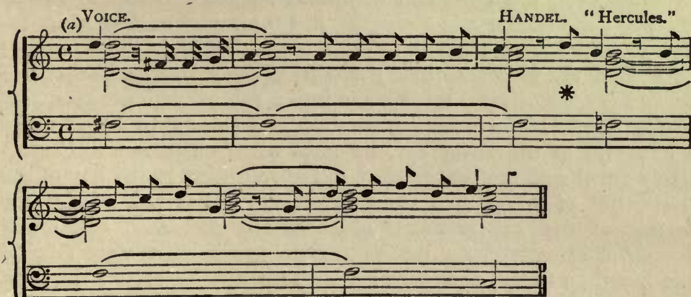
minor to the relative major of its dominant minor—in this case from D minor to C major. This modulation is not very common, and in the present instance C major is quitted as soon as it is entered.

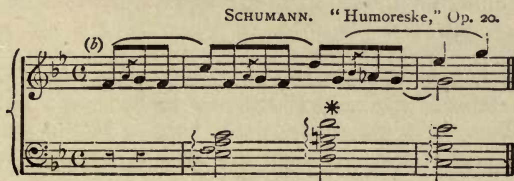


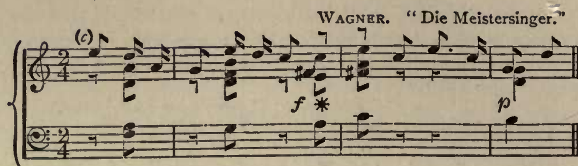
The first chord of the second bar is taken as the tonic of D minor and quitted as supertonic of C major. The second chord is a chromatic chord in the key of C, which will be spoken of in the twelfth chapter; the third chord is part of the dominant eleventh of C, with which the student is not yet acquainted, and at the last chord of the bar, the music modulates to A minor.

241. The general rule for modulating to a nearly related key which may be gathered from the examination of the extracts we have given is that the modulation may be effected either by immediately altering one of the notes of the key we are leaving by means of an accidental (as in §§ 235, 237), or by taking a chord common to both keys, and leaving it as a constituent of the new key, as in §§ 236, 238, 239, 240. All nearly related keys contain at least one chord in common.

242. Another method of modulating consists of irregularly resolving the chord of the dominant seventh by making its third rise a tone, or fall a semitone or a tone, or its seventh rise a semitone. An example of each procedure will make this clear.



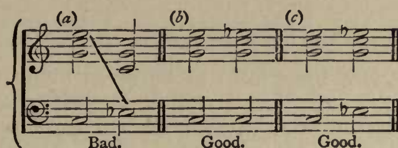




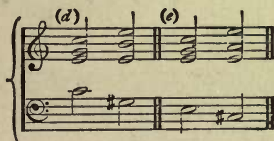
At ∗ in (*a*) the third of the dominant seventh in G falls a chromatic semitone to the seventh of the dominant seventh in the subdominant key, which is followed by the tonic chord, to establish the key. The irregular progression of the bass in the last two chords was spoken of in the last chapter (§ 217). At (*b*) the third in the chord of the dominant seventh in B flat rises a tone to the third of the same chord in the key of C minor (the supertonic minor), and the modulation is confirmed by the tonic chord of that key. At (*c*) the seventh in the chord of the dominant seventh of C rises a chromatic semitone, and becomes the leading note of the key of G, to which a modulation is made. The chord marked ∗ is a dominant ninth in G, a chord which will be treated of later.

243. There is yet one more point to be considered in the choice of modulations. As a general rule, a modulation to the dominant side of the tonic—that is, to a key containing more sharps, or fewer flats—is to be preferred to one to the subdominant side—that is, a key having more flats, or fewer sharps. The reason of this is that the dominant is a key generated out of the tonic (§ 224), as also are all other keys with more sharps than itself (*see* Chapter III.). When, therefore, we modulate into one of these keys, the tonic still maintains its position as the source whence the whole music springs. But the tonic itself is a derivative of keys having more flats than itself—*e.g.* C is the dominant of F, and the mediant of A♭; and when we modulate into one of these keys the original tonic sinks into a subordinate position as a *derived* key. If, for instance, we modulate from C to F and make a long stay in the latter key, we shall when we return to C most likely get the mental impression, not of returning to the key of the tonic, but of going into a dominant key. For this reason the feeling of the key is much more readily disturbed and much sooner obliterated by a modulation to the subdominant side of the key than to the dominant side. This applies chiefly to major keys; in minor keys, owing to their more artificial origin, greater freedom prevails, and the same disturbing effect is not so readily produced.

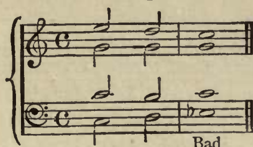
244. When in two consecutive chords a note forming part of the first chord is chromatically altered to become a note of the second chord, it is frequently best to keep it in the same voice. This is especially the case when the roots of the two chords are the same.



The progression at (*a*) is called a *False Relation.* (Another use of this term is explained in § 62.) The note to be altered should therefore be kept in the same voice, as at (*b*). If this be done, no false relation occurs by another voice moving to the same note, as at (*c*). The false relation is also not considered to exist when the altered note forms part of a fundamental discord (§ 197). For instance in example (*a*) of § 235, the first chord of the third bar has C♮ in the bass, and the second has C♯ in the alto. But the latter is not objectionable, because it forms part of a chord of the dominant seventh. Neither do the chromatic chords in a key (to be explained in a later chapter) generally cause false relation, because the essence of false relation is the confusion or obscurity of key which it produces, and chromatic chords, if properly treated, have not this effect. But even in this case, when the chromatic chord has the same root as the preceding or succeeding diatonic chord, the altered note should be kept in the same voice. False relation, moreover, has no bad effect when the third of the first chord is either the root or the fifth of the second chord.



At (*d*) we can modulate from C major to A minor without bad effect because E, the third of the chord of C, is the root of the second chord. At (*e*) we proceed to D minor, the third of the chord of C being the fifth of the chord of A. It should be added that the interposition of one intermediate chord will not destroy the effect of a bad false relation, *e.g.*,



There are few questions on which theorists differ more widely than that of false relation, many passing it over without notice; and there is probably no rule to which there are so many exceptions. Only experience will enable the student to know with certainty when an apparently false relation is objectionable, and when allowable.

EXERCISES TO CHAPTER X.

[In the exercises henceforth to be given modulations will be introduced, and greater variety and interest obtained. The student must notice what accidentals are employed; this will enable him to determine into what keys the music modulates.]

(I.)

(II.)

(III.) Hymn Tune.

(IV.) Hymn Tune.

(V.)

(VI.)

(VII.) Hymn Tune.

(VIII.)

CHAPTER XI.

AUXILIARY NOTES, PASSING NOTES, AND ANTICIPATIONS.

245. In explaining the various examples quoted from the works of the great masters to illustrate the chords already treated of, it has frequently been needful to mention that some of the notes in the extracts were not notes of the harmony, but auxiliary or passing notes. It is now time to show the nature of such notes.

246. An AUXILIARY NOTE is a note preceding or following a note of the harmony at a distance of a second above or below. As all seconds are discords, the auxiliary note will always be dissonant to at least a part of the chord with which it is sounded; but, as it is not itself an essential part of the chord, like the dissonant sevenths treated of in Chapter IX., it is called an *unessential discord.*

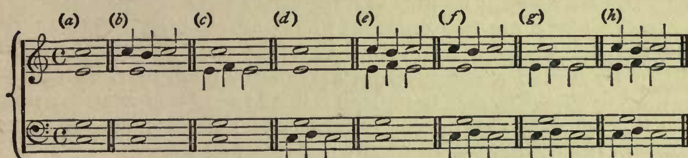
247. An auxiliary note is frequently taken, and (excepting in certain cases to be specified presently) should always be left, by step of a second. It may occur on either a stronger or a weaker accent than the harmony note to which it belongs, and it may be at a distance from that harmony note of either a tone or a diatonic semitone above or below.

248. When an auxiliary note is *above* the harmony note, it should be the next note of the diatonic scale of the key in which the music is, whether that note be a tone or a semitone above; but if it be *below* the harmony note, it should be a semitone below it, unless such harmony note be the major third of a chord, in which case the auxiliary note may be either a tone or a semitone below the harmony note.

At (*a*) are shown auxiliary notes above the harmony notes, and at (*b*) they are given below. In this example they are both taken and left by step; but we shall see many cases later in the chapter in which they are taken by leap.*

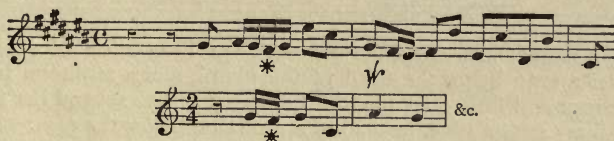
249. In example (*b*) of the last paragraph will be seen the note C♯ in the key of C. A reference to the chromatic scale of C given in § 11 will show that this note is not one of the notes of that scale; it was also explained in Chapter III. that the note employed in the chords of the key of C was D♭ (§ 62), and that we cannot also have its enharmonic, C♯, without getting more than twelve notes in the key (§ 69). But, though C♯ cannot be employed as a *harmony* note in C, it may be used as an *auxiliary* note a semitone below D. The restriction as to the twelve notes in the key applies only to the notes of the harmony. Similarly D♯, G♯, and A♯ can be used as auxiliary notes below E, A, and B respectively.

250. Auxiliary notes may be taken in more than one part of the harmony simultaneously, *provided that characteristic notes of the harmony remain in some of the parts.*



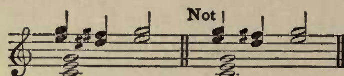
At (*a*) is the chord of C major. At (*b*) an auxiliary note is added in the treble, at (*c*) in the alto, and at (*d*) in the bass. In each case the chord remains the chord of C. If auxiliary notes are taken in treble and alto together, as at (*e*), the C in the bass still preserves the feeling of the chord, as do the E in the alto of (*f*) and the C in the treble of (*g*). But if all three auxiliary notes are taken together, as at (*h*), the feeling of the chord of C is gone, and we have instead of it the second inversion of the dominant seventh on G. The notes D, F, and B are no longer auxiliary, but harmony notes.

* The rule given in this paragraph is almost universally observed by modern composers. Bach, however, frequently adheres to the diatonic scale for an auxiliary note below, as well as above the harmony note, as in the two following fugue subjects from the "Wohltemperirte Clavier."



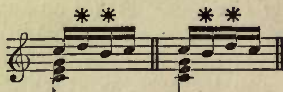
In both these passages a modern composer would have unquestionably written the auxiliary notes a semitone, and not a tone, below the dominant.

251. It was said in § 248 that the auxiliary note below a major third might be either a tone or a semitone below it. If, however, the fifth of the chord have also an auxiliary note below it, which will be at the distance of a semitone, the auxiliary note of the third must also be a semitone below.

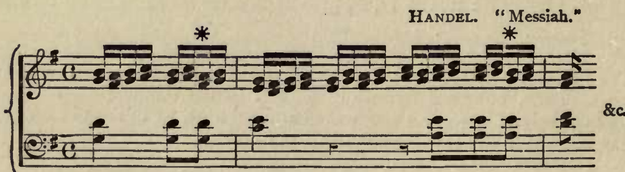


252. Let the student now examine the auxiliary notes that have been met with in some of our examples. At § 202, in the second bar of (*b*) the second quaver, C, is an auxiliary note to D taken and left by step. At § 208 (*b*) the E♮ in bar 1 is an auxiliary note to F, taken by leap and left by step. In § 211 (*a*) the B♮s in the first bar and C♯s in the second are auxiliary notes to C and D respectively. Similarly the upper note of any shake and the upper and lower notes of any turn are always auxiliary notes. In § 239 in the third bar of (*b*) the A♯ is an accented auxiliary note, taken by leap of a third and left by step.

253. There are two cases in which an auxiliary note can be quitted by leap of a third, instead of by step. Such a note, if taken by step of a second from a harmony note, may, instead of returning direct to that note, leap a third to another auxiliary note on the opposite side provided that this second note return at once to the harmony note from which the first moved.



Two auxiliary notes used in this manner are usually called *changing notes*. An excellent example of them in two parts will be found in Handel's chorus "For unto us a child is born."



This extract also furnishes an excellent illustration of auxiliary notes a tone below the third of the chord, and a semitone below the root and fifth. In the third crotchet of the second bar is an auxiliary note a tone, instead of a semitone below the root. Such diatonic progressions were more common in the last century than now. (Compare note to § 248.)

254. The second case in which an auxiliary note may be quitted by leap is when the harmony notes move by step, and the first note moves a second to an auxiliary note on the opposite side to the next harmony note, to which it then leaps a third. This progression is much more common when the step is upward and the leap downward than in the reverse direction.

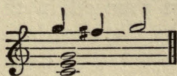
MOZART. Rondo in A minor.
(*a*)

HAYDN. 2nd Mass.
(*b*)
&c.

H. LAWES.
(*c*)

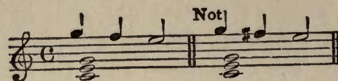
At (*a*) it is evident that D is not a part of the chord of $\begin{smallmatrix}6\\4\end{smallmatrix}$ on E which is followed by another chord on the same bass note; it is an auxiliary note rising a second to fall a third. At (*b*) is a series of similar notes in quick time. The very rare reverse case (*c*), the falling second and rising third, is taken from a song by Henry Lawes given by the late Dr. Hullah in his "Transition Period of Musical History."

255. When an auxiliary note, proceeding by step from a harmony note, moves to another note of the harmony, instead of returning to the first one, it is called a Passing Note. These notes, excepting in chromatic passages, are almost invariably taken according to the diatonic scale of the passage in which they occur. For instance, in the chord of C an auxiliary note below G would be F♯ (§ 248).

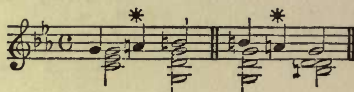


But if, instead of returning to G the auxiliary note proceeds to E, it then becomes a *passing* note; and, if the music at the time were

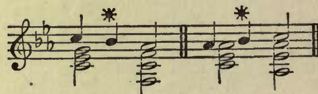
in the key of C, and not of G, this passing note must be F♮ and not F♯.



256. In the minor key, in order to avoid the interval of the augmented second between the sixth and seventh degrees of the scale, it is customary to use for passing notes the two *melodic* forms of the scale given in §§ 169, 170, instead of the *harmonic* form given in § 171. Therefore in passing from the dominant to the leading note of the minor key, or in the reverse direction from leading note to dominant, the *major sixth* of the key is mostly taken as the passing note.

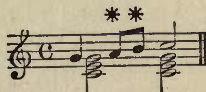


Similarly, in passing from submediant to tonic, or from tonic to submediant, the minor seventh of the scale will be used.

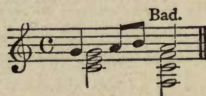


It is *possible* in both these cases to employ the harmonic form of the scale; but this is very unusual.

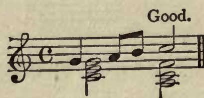
257. If the two harmony notes are a fourth apart, as, for instance, in rising from the fifth to the root of a chord, there will evidently be two passing notes between them.



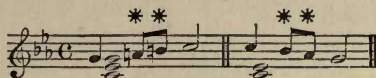
In such a case, it is not good to return from the second passing note to the first, even though by a change of the harmony the first may have become a harmony note,



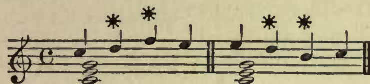
but the second note must proceed in the same direction till it reaches the next note of the first chord.



If two passing notes follow one another in rising from the fifth to the root of the tonic chord in a minor key, it is usual to employ the *melodic* forms of the minor scale, as in § 256, with the major sixth and seventh in ascending, and the minor seventh and sixth in descending.

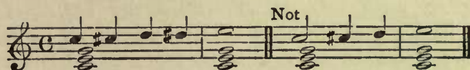


258. The only case in which a passing note may be quitted by leap is when the two harmony notes which it connects are at a distance of a third apart, and the passing note instead of going direct to the second harmony note, leaps a third to the other side of it, and then returns.



This is another variety of the 'changing notes' mentioned in § 253.*

259. Chromatic notes, as well as diatonic, may be used as passing notes; but if a chromatic note has been introduced it is best to continue the progression by semitones until the next harmony note is reached.



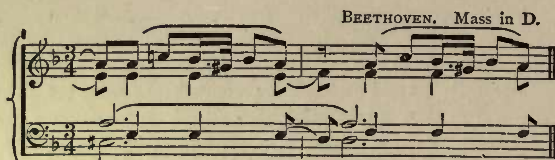
In this example the chromatic notes are written as C♯ and D♯, not as D♭ and E♭ (*see* § 249). This is because they are moving upwards; if they were descending, it would have been better to write them as flats. This point will be more fully explained later.

260. We will now, as with the auxiliary notes, refer to the passing notes in some of the extracts quoted in previous paragraphs. At (*d*) in § 157 we see on the last quaver of the second bar an example of an accented passing note, E. A still more striking example is shown at § 160 (*g*), where the G♯ at the beginning of the second bar is not only a passing note on the first beat of the bar, but is of greater value than the harmony notes which precede and follow it. The two scales quoted from Handel in the second example of § 170 are instructive, because though they contain exactly the same notes, the passing notes are different, as they are differently accompanied. In the first scale C, B, G, and E♮ are passing notes, and in the second C, A, F♯, and E♮. At § 183 (*b*) the second quaver of the bar,

* Some exceptional progressions of auxiliary notes will be shown later in this chapter; but these do not invalidate the general rules here given.

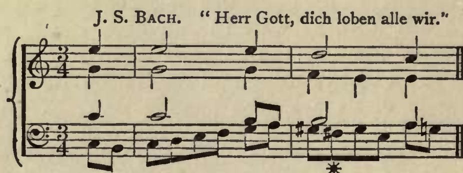
C, is an unaccented passing note; and at § 217 (*b*) the quaver B is an accented passing note.

261. It is important to notice that auxiliary and passing notes cannot make "false relation" (§§ 62, 244), and that even the interval of the diminished octave may be sometimes used with very fine effect.



In the first bar of this example the harmony note of the second crotchet of the treble is B♭, the chord being the first inversion of the dominant minor ninth, which will be explained later. The C♮ is an auxiliary note taken by leap of a third; the G♯ is another auxiliary note taken also by leap, but instead of going at once to A it returns to B♭ first, the latter note thus producing the effect of a changing note. In the second bar, the harmony is that of the tonic chord of D minor; C is an auxiliary note taken by leap, B♭ is another auxiliary note resembling a passing note, following the first, and therefore moving in the same direction till it reaches the harmony note (§ 257), and G♯ is now a changing note interposed before the harmony note A. It is rare to find a passing note taken by leap, as in this second bar, when at the distance of a third from the harmony note; it is usually a second above it.

262. Another curious example of an auxiliary note at the distance of a diminished octave from the harmony note is found in one of Bach's Church Cantatas.



Here the effect is much harsher than in the passage from Beethoven just quoted, and the extract is not given for the student's imitation, but to show its harmonic possibility.

263. Besides the two kinds of auxiliary notes already spoken of, there is a third species somewhat resembling them, though possessing features of its own. Sometimes one or more parts of the harmony proceed prematurely to their notes in the next chord, while the others remain. This effect is known as an ANTICIPATION.

Handel. "Messiah."

(a)

J. S. Bach. "Gieb dich zufrieden."

(b)

Schubert. Sonata in A minor, Op. 42.

(c)

Weber. Sonata in A♭.

(d)

At (*a*) is an anticipation of the following harmony note in the treble, and at (*b*) in both treble and tenor. Such are to be mostly found, as in these examples, in cadences; but the passages at (*c*) (*d*) show that they can be used also in other ways. At (*c*) each harmony note is anticipated, and at (*d*) not only harmony notes but passing notes are thus treated.

264. Occasionally, though rarely, a note is anticipated in one voice, and then taken in another, as in the following examples:—

Bach. "Es ist dir gesagt."

(a)

Handel. "Hercules."

(b)

At (*a*) the E of the alto is anticipated in the treble, and at (*b*) the B of the bass is similarly treated.

265. Exceptional treatment of auxiliary notes is sometimes found in the works of the great masters. The following passages must be looked upon as licences, as they cannot be explained by any of the rules given in this chapter. They are therefore not recommended for imitation.

BACH. "Was Gott thut."

(*a*) *

HANDEL. "Athaliah."

(*b*) *

MOZART. Fantasia in C minor.

(*c*) *

MOZART. Symphony in E♭.

(*d*) *

p

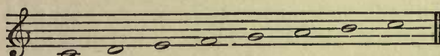
At (*a*) and (*b*) will be seen auxiliary notes leaping a fourth and a diminished fifth, instead of a third, to the harmony note. At (*b*) we have also an excellent example of the anticipations spoken of in § 263. The note D at the end of the first bar of example (*c*) is clearly an auxiliary note, because the harmony is defined as being that of the common chord of F by the arpeggio in the bass. (*See* § 192.) Here the auxiliary note leaps a sixth, while at (*d*) it leaps a fifth. The F in example (*d*) may also be considered as an anticipation of the implied harmony of the following chord (the dominant seventh), and would thus present some analogy to example (*b*) of § 264. The student will do well to conform to the rules we have given till he has gained sufficient experience to know when they may be safely relaxed.

CHAPTER XII.

THE CHROMATIC SCALE—CHROMATIC TRIADS IN A KEY.

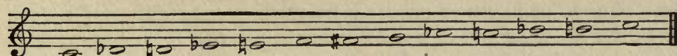
266. A chromatic scale has been defined (§ 11) as "a scale consisting entirely of semitones." It contains twelve notes within the octave, while a diatonic scale contains only seven. It will be remembered that the intervals between the consecutive notes of any major scale are five tones and two semitones. Each tone can be divided into two semitones, thus making twelve semitones in all.

267. To obtain the correct harmonic form of any chromatic scale from its tonic major (§ 175), we divide each tone into its constituent parts, a diatonic and a chromatic semitone (§ 7). Let us do this with the scale of C major.



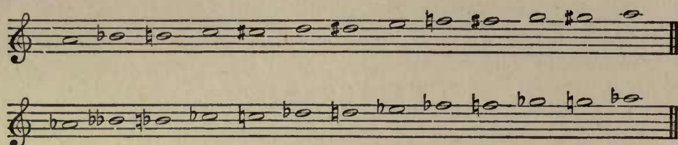
Here we have tones between C and D, D and E, F and G, G and A, and A and B. It is clear that each of these tones can be divided in two different ways. Thus, between C and D we can put either C♯ or D♭, in the former case having the chromatic semitone as the lower one, and in the latter the diatonic; and similarly we can put either a sharp or a flat between each of the other tones. How shall we know which to take?

268. If we refer to the three fundamental chords given in § 71 which contain the whole material of the key, we shall find the necessary guidance. There is no C♯ in the key at all; but we see D♭ as the minor ninth of the tonic. Similarly we find E♭ (not D♯) as the minor ninth of the supertonic, F♯ (not G♭) as the third of the supertonic, A♭ (not G♯) as the minor ninth of the dominant, and B♭ (not A♯) as the seventh of the tonic. As all the harmonies of the key are made from these three fundamental chords, it follows that the correct *harmonic* form of the chromatic scale of C will be

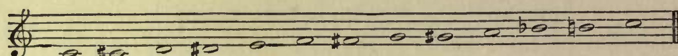


as given in § 11. To write a correct chromatic scale, the upper note of each *tone* in the major key except that between subdominant and dominant must be flattened for the intermediate semitone, and the subdominant of the scale is the only note sharpened. To illustrate this, we give the chromatic scales of A major and A

flat major. Let the student compare them with the scale of C given above.



269. As a matter of convenience, the chromatic scale is often written, especially in ascending passages, with a different notation from that just given. In the chromatic scale of C, for example, C♯, D♯, and G♯ are often substituted for D♭, E♭ and A♭; sometimes, also, though more rarely, A♯ is written instead of B♭. But F♯ is almost invariably retained. The scale of C will then appear in the following form.



This form of the scale is somewhat easier to read, especially in rapid music, as it has fewer accidentals. This is probably the chief reason for its frequent adoption; because we find that in the descending chromatic scale the correct notation is usually adhered to—most likely for the same cause, as it is not uncommon in this form to find the flattened fifth instead of the sharpened fourth, thus saving an accidental.

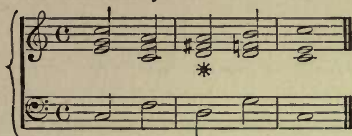
270. It is an interesting point, and worthy of passing notice, that the three notes which in the convenient, though inaccurate, notation just given are raised in ascending, are the minor ninths of the three generators in the key. When we come to deal with chords of the minor ninth it will be seen that where that note resolves (as it frequently does) by rising a chromatic semitone, it is usual to adopt the same notation, and to write it, incorrectly but conveniently, as the sharpened octave of its generator.

271. All the chords of either a major or minor key with which the student is at present acquainted are *diatonic* chords, that is chords in accordance with the key signature; and (excepting the leading note of the minor key, which [§ 172] is not considered as a chromatic note) they require no accidentals. But the chromatic notes may also be used in chords of the key under certain conditions now to be explained.

272. When treating of modulation in Chapter X., it was shown that a change of key was effected by putting an accidental before one of the notes of the key we were quitting, the altered note thus becoming a diatonic note of the new key. Thus in the example in § 231 the sharp before the F in the third chord of (*a*) takes the music from C into the key of G, the new key being established by the chords that follow. But it was pointed out in § 229 that no single chord can ever define a key. As all music must be in some key, it follows that every chord must be either in the same key as

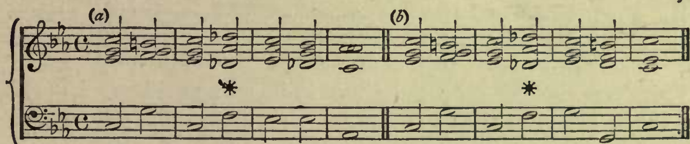
the chords that precede it, or in the same key as the chords that follow it. Now if the chords *preceding* any one chord be in the same key as the chords *following* that chord, then, if the chord have one or more accidentals before it, it will be a Chromatic Chord in the key.

273. To make this clearer, we will vary the example given in § 231 (*a*). We will take the first three chords as before, but will follow the third chord differently.



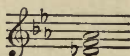
The first two chords are, as before, in the key of C, for there is no B♭ to indicate the key of F. The third chord (✱) looks as if we were about to modulate into the key of G; but the fourth and fifth chords absolutely define the key of C (§ 219). The chords preceding and following the chord marked ✱ are therefore all in the key of C; consequently the chord ✱ must be *chromatic* in that key.

274. Let us take another illustration, this time in a minor key.



At ✱ of (*a*) there is a modulation to A flat; the first inversion of the chord of D flat is therefore regarded as diatonic in its relation to the new key, and here it is not considered to belong to the key of C minor at all. But the same chord (✱) at (*b*) is followed by chords which define the key of C minor, and in this latter case the fourth chord is a chromatic chord in C minor. Whenever a modulation takes place, the note inflected by an accidental is regarded as belonging to the key in which it is diatonic. But if there be no modulation such note forms part of a chromatic chord. Hence we get the following definition:—*A chromatic chord in a key is one which contains one or more notes foreign to the signature of that key, but which induces no modulation.*

275. For a reason which will become apparent as we proceed, we will first take the chromatic chords of a minor key. These are three in number. Speaking first of those most frequently used, we find a chromatic major chord on the minor second of the scale.



Here the root is itself the chromatic note, the third and fifth of

the chord being respectively the subdominant and submediant of the minor scale. This is one of the most important, and in its first inversion one of the most frequently employed, of the chromatic chords. There is no restriction as to the chords which shall follow this chord, if only the key remain the same.

(a) J. S. BACH. Organ Prelude in C minor.

(b) BEETHOVEN. Sonata, Op. 57.

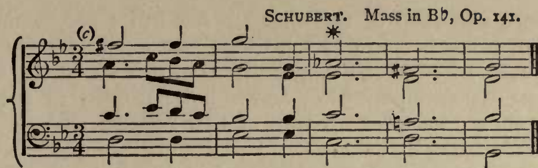
These two extracts show the chord in its root position. In (*a*) it is in the key of G minor, and is followed by the first inversion of the dominant chord of that key; at (*b*) it is in F minor, and is followed by the second inversion of the dominant minor ninth.

276. The first inversion of this chord

is generally known as the "Neapolitan sixth," a name for which it is difficult to give a satisfactory reason. This form is much more frequently met with than the root position. Here follow three examples of this chord, illustrating some of its most usual progressions.
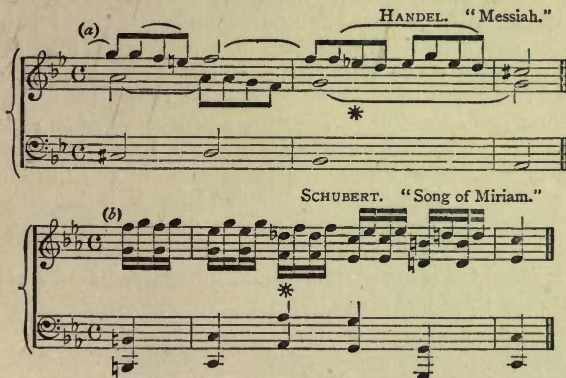
(a) HAYDN. Sonata in C♯ minor.

(b) HANDEL. "Joseph."



At (*a*) the "Neapolitan sixth" is followed by the tonic chord—here in its second inversion, though the bass might also have descended to the first inversion of the tonic; at (*b*) the chromatic chord is followed by another chromatic chord (the supertonic minor 9th) in the same key; and at (*c*) it is followed immediately by the root position of the dominant chord. In the second and third bars from the end the student should notice that the A♭ in the treble and A♮ in the tenor make no false relation (§ 244).

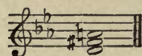
277. The second inversion of this chord is also sometimes, though more rarely, to be found.



At (*a*) the chord is followed by a dominant seventh, and at (*b*) by the second inversion of the tonic chord. The consecutive fourths with the bass (§ 106) do not here produce a bad effect.

278. The harmonic derivation of the chromatic chord on the minor second of the key will be seen by reference to § 66. It is composed of the minor 9th, 11th, and minor 13th of the tonic, the lower note being a primary, and the other two secondary harmonics of the generator.

279. A chromatic chord by no means inferior in importance to that just treated of is the major common chord on the supertonic of the minor scale.



Here both the third and the fifth are chromatic notes, and the chord is itself identical with the dominant chord of G major or minor, from which, however, it is easily to be distinguished by its

treatment. The fifth of this chord is free in its progression, but the third is subject to special rules which we must now explain.

280. It will be noticed that the third of this chord is the leading note of the dominant key; and if it be treated as such, and rise a semitone to the tonic chord of that key, we shall evidently have a modulation, and the chord will then be not chromatic in C minor, but diatonic in G. In order to keep it in C minor, we must, if the F♯ rises a semitone, make G part of the *tonic* chord of the key, following it by chords which are also clearly in that key. In general terms, *if the third of the supertonic chord rises, it should be followed by some form of the tonic chord.*

281. In treating of modulation, it was shown how by lowering the leading note a chromatic semitone we could pass to the subdominant key (Example (*a*) § 242). In the chord we are now considering, it is clear that if F♯ were the leading note of G, we could modulate to C by changing it to F♮. Evidently, if, as a constituent of the supertonic chord, we lower it to F♮ when the chord changes, we prevent any impression of the chord being the dominant chord of G, for it does not resolve in that key. It matters not what chord does follow, so long as F♮ is a part of that chord. The major third of this chromatic chord, therefore, when it does not rise *should fall a semitone, and be followed by some chord of which the subdominant of the key forms a part.* It is very important to remember that as the progression of the third of this chord is fixed, it must never be doubled; for if it be, either one of the thirds must move incorrectly, or there will be consecutive octaves.

282. The following simple chord progressions will serve to illustrate the rules just given.

At (*a*) the chromatic chord on the supertonic (*) has its third rising a semitone; it is therefore followed by the tonic chord—here in its second inversion. Let the student observe the way in which the basses are figured. In the second chord of (*a*) the second inversion of the dominant seventh requires to be fully figured, because the 6th bears an accidental (§ 209). In the fourth chord it is needful to figure the common chord fully because both 3rd and 5th bear accidentals (§ 152). At the last chord but one of (*a*) will be found a sign which has not yet been explained. A line placed after a figure or an accidental (as here, ♮ –) indicates that the note represented by the preceding figure is to be

continued. In the present instance the ♮ 3rd (B♮) is to be held on while first the 8th and then the 7th of the bass note are sounded.

283. Though it was said above that this chromatic chord on the supertonic was one of the most important, it is comparatively seldom that it is found in the simple form we are now describing. Generally the 7th, frequently also the 9th is added to it, as will be seen in the following chapters. We shall give directly a few examples of its employment without these dissonant notes.

284. When used in its first inversion this chord is subject to the same rules as regards its third as in the root position. Obviously, as its third is now in the bass, if this note rises, it must be followed by the second inversion of the tonic chord. If the third falls there is more choice. The second inversion of the chord is very rare.

285. We now give a few examples of the use of this chord by the great masters.

(a) Wagner. "Der Fliegende Holländer."

(b) Beethoven. Sonata, Op. 31, No. 2.

(c) Mendelssohn. Sonata, Op. 6.

(d) Mendelssohn. Fantasia, Op. 28.

The first of these extracts illustrates what was said of ambiguous chords in speaking of modulation (§ 231). Immediately preceding this quotation is a cadence in the key of F. The first seven chords of (*a*) may be either in that key, or in B flat (the key of the piece) or

in D minor; the chromatic chord at * clearly belongs to this last key, as neither F nor B flat contains G♯. The chord of E major must therefore be in the key of D minor; its third (G♯) rises a semitone, and the chord is consequently followed by the tonic chord of D minor, leading directly afterwards to a full close in that key. Example (*b*) gives us some fresh instruction. In the first bar we see the Neapolitan sixth of A minor (§ 276); it is clear that if the key were D minor, the C of the first chord would be sharp. The fourth bar shows how one chromatic chord in a key (here the Neapolitan sixth again) can be followed by another, the first inversion of the major chord on the supertonic*; the third of this chord (D♯) rises, as before, but now, being in the bass, it is followed by the second inversion of the tonic chord. At (*c*) the third of the first inversion (B♯) falls a semitone to the seventh in the chord of the dominant minor ninth, B♮ being an essential note of the new chord. The last example (*d*) shows the rare second inversion, the bass being quitted by step of a chromatic semitone. These examples will, it is hoped, sufficiently explain the treatment of this chord.

286. The harmonic derivation of this chord is extremely simple. It is merely the generator, major third, and fifth of the supertonic (§ 69). It has been already said (§ 176) that the minor key is derived from the same three generators as its tonic major.

287. In addition to the two chromatic chords already described there is another, much less frequently used, yet too common to allow of our considering it as an exceptional progression. In § 193 it was said that the tonic major chord was often used to conclude a minor piece, and that in this connection only, the major third was not considered a chromatic note. But the major tonic chord can also be used as a chromatic chord in the course of a movement in the minor key. In this case, however, especial care has to be taken to treat the chord in such a manner as not to produce the impression of a modulation. The following examples will show how this is effected.

MENDELSSOHN. Presto Agitato.

(*a*)

*

*

* Compare example (*b*) of § 276.

Schubert. Winterreise, No. 15.

(*b*)

Spohr. "Calvary."

(*c*)

At the third bar of (*a*) the first chord is the first inversion of the tonic major chord in the key of B minor; the first chord of the fourth bar is the same chord in its root position. This extract also furnishes in the third bar an example of the supertonic chromatic chord in root position proceeding to dominant harmony. In the example of the same position quoted in § 285 (*a*) the chord was followed by the tonic chord. The extract (*b*) shows the first inversion of the tonic major chord; and also (in the third and fourth bars) the root position and first inversion of the chord on the minor second of the key. The last illustration (*c*) gives the second inversion of the tonic major chord.

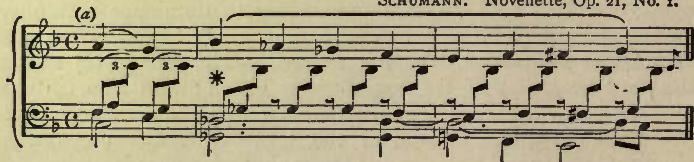
288. If we compare these three examples (and many similar ones might be given), we shall see that the treatment of the chromatic note (the major third of the chord) is the same in each instance. It is always approached and quitted by step of a semitone. The D♯ in the bass of the third bar of (*a*) is only apparently, not really, an exception to this rule; for though it is immediately preceded by F♯, it will be noticed that this note is only an ornamental resolution (§ 202) of the E, the seventh of the chord preceding the tonic chord, which really resolves by descending a semitone to the major third of the tonic chord. To understand the progression in example (*b*) it is important to remember that the notes of a chord taken in arpeggio are in harmony to be considered as if sounded together (§ 192). The first two bars of the lower staff of (*b*) are therefore equivalent to

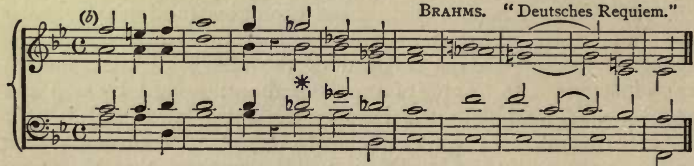
where it will be clearly seen that E♮ is approached from E♭ and proceeds to F. Here the progression is upwards, while at (*a*) it was downwards. At (*c*) the chromatic D♯ lies between E and D♮.
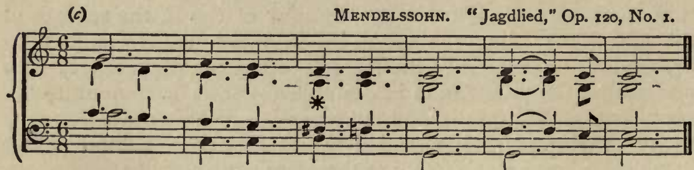
289. From these and similar examples of the practice of the great masters, we deduce the following rule for the treatment of this chord.—*A major chord on the tonic may be taken as a chromatic chord in a minor key, provided that its third is approached from the semitone on one side of it, and proceeds to the semitone on the other side.*

290. Every triad in a minor key, whether diatonic or chromatic, with the exception of the minor tonic chord itself, which would contradict the major key, can be used as a chromatic triad in the tonic major of that minor key.* It will be hardly necessary to remind the student that the triads on the dominant and leading note are the same in both major and minor keys. The major tonic chord, which is chromatic in the minor key (§ 287), is of course already in the major key as a diatonic chord.

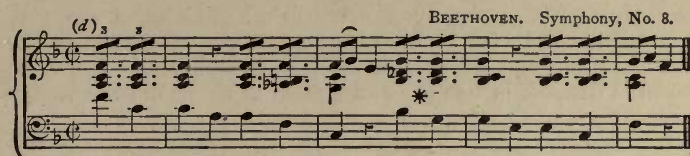
291. No new rules need be given for the treatment of the chromatic triads in the major key. The chromatic chord on the supertonic is subject to the same restrictions as regards its third as in the minor key (§§ 280, 281); but the other chords are free in their progression, provided always that they are followed by chords in the same key. It will be unnecessary to illustrate all the positions of each chord; but a few examples may be given.

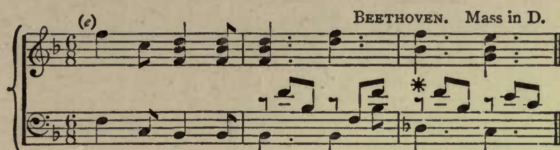


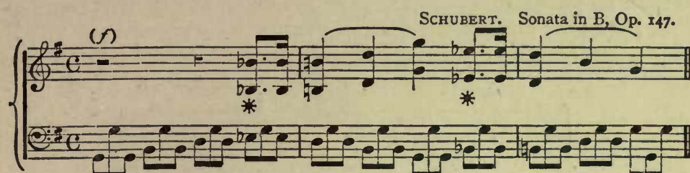




* We sometimes meet in the major key with a chord containing the same notes as the tonic minor chord; but in this case the treatment and progression of the chord prove it to be really the upper portion of the chord of the supertonic eleventh. It will therefore be explained in the chapter on chords of the eleventh (§ 394).

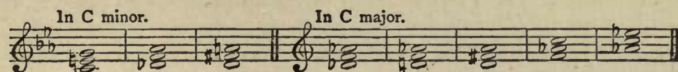






After the explanations already given, it will not be needful to do more than to remind the student of the nature of each of these chromatic chords. At (*a*) is shown the root position of the chord on the minor second of the key of F, and at (*b*) the first inversion of the same chord (the Neapolitan sixth), also in F. The chromatic chord on the supertonic is seen at (*c*) in its root position; while (*d*) gives the first inversion and root position of the diminished triad on the supertonic; and (*e*) the first inversion of the minor chord on the subdominant. Lastly at (*f*) are shown the root position and second inversion of the chord on the minor sixth of the scale—the submediant chord in the minor key.

292. We now give for reference a complete table of the chromatic triads in the keys of C minor and C major.

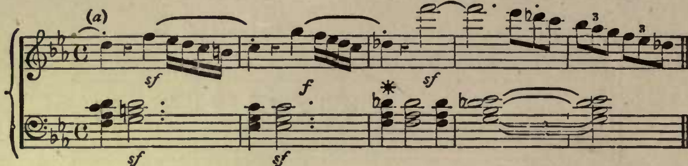


It will be noticed that though it was said in § 290 that every triad of the minor key except the tonic chord can be used chromatically in the major key, we have not included the augmented triad on the mediant (§ 184) in the above table. This is because whenever that chord is employed in a major key it is always in its real character, as a chord of the dominant minor thirteenth; it will therefore be treated of in that relation in a subsequent chapter.

293. In Chapter X. it was shown how modulation was frequently effected by means of some chord common to the key which was quitted and that which was entered. By the chords

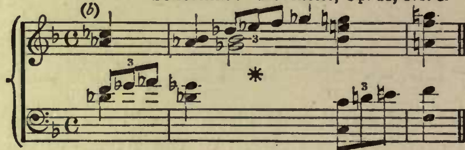
treated of in this chapter, the means of modulation are very largely increased; for a chord can be taken as chromatic in one key and quitted as diatonic in another; or conversely, it may be taken as diatonic in one key and quitted as chromatic in another. We will give one example of each method.

BEETHOVEN. "Sonata Pathétique."



Here a modulation is made from C minor to A flat by taking the chord ∗ as the Neapolitan sixth in the former key, and quitting it as the first inversion of the subdominant chord in the latter.

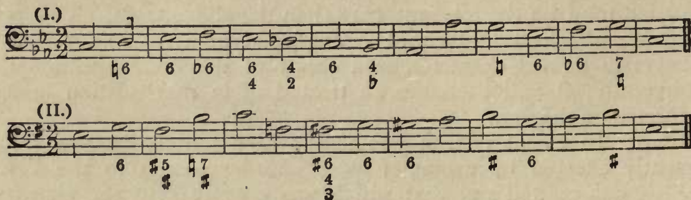
SCHUMANN. Novellette, Op. 21, No. 1.

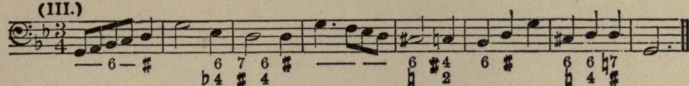


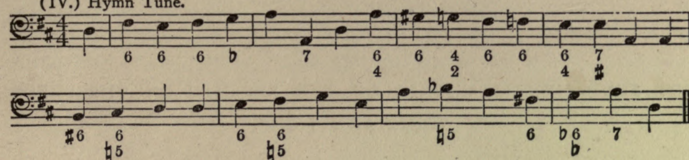
In this passage we commence in G flat major. At ∗ the chord of G flat is taken as the tonic chord in that key and quitted as the chromatic chord on the minor second of F, to which key a modulation is thus effected. If the student will accustom himself to analyse the harmonies in the works of the great masters, he will find on nearly every page of their works modulations by means of chromatic chords thus treated.

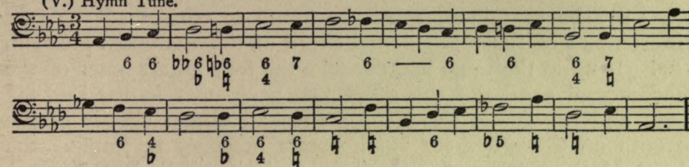
EXERCISES TO CHAPTER XII.

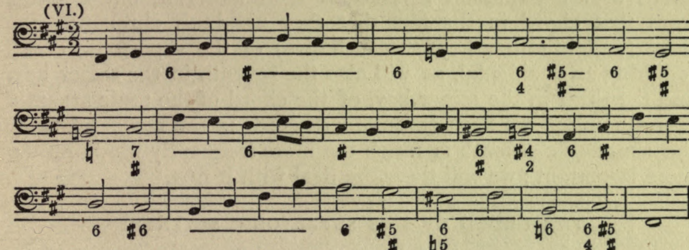
[In these exercises occasional passing and auxiliary notes will be introduced. It is not usual to figure an unaccented passing or auxiliary note. The student may introduce such notes where he can leave them by step. A passing note in the bass is indicated by a line below it which has been continued from the preceding harmony note. If the harmony note has only a line below it, with no figures, it shows that it is the bass of a triad in root position.]

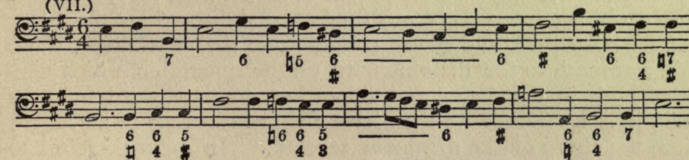


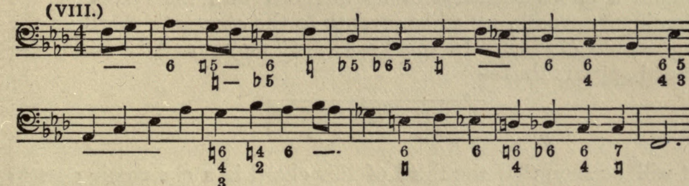

(III.)
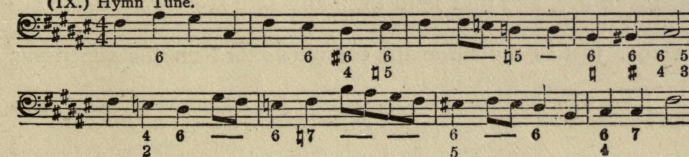

(IV.) Hymn Tune.


(V.) Hymn Tune.


(VI.)


(VII.)


(VIII.)


(IX.) Hymn Tune.

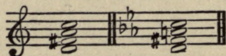
CHAPTER XIII.

THE FUNDAMENTAL CHORDS OF THE SEVENTH ON THE SUPER-TONIC AND TONIC.

294. If the chord of the dominant seventh shown in Chapter IX. § 197 be examined, it will be found to consist of the four lowest notes of the fundamental chord of the dominant given in § 67. If we in the same manner take the four lowest notes of the fundamental chords of the other two generators in the key, the tonic and supertonic (§§ 66, 69), we shall obtain chords of the seventh on those degrees of the scale precisely resembling the chord of the dominant seventh in their intervals, but differing from that chord in the fact that they are both chromatic, the third (and in minor keys the fifth also) of the supertonic chord requiring an accidental, as will also the seventh in the major key, and the third in the minor key, of the chord of the tonic seventh. Here therefore we have chromatic discords in the key. Of these the supertonic seventh is much the more frequently used and the more important; we will therefore deal with it first.

THE CHORD OF THE SUPERTONIC SEVENTH.

295. It has been more than once said (§§ 61, 197) that the distinguishing intervals of any fundamental discord are the *major third*, *perfect fifth*, and *minor seventh* from the generator. If we add a seventh to the diatonic triad on the supertonic, which contains both in the major and minor key a minor third from its root, it is clear that we shall have a chord differing in its nature from the chord of the dominant seventh.* In order therefore to obtain a chord identical in its intervals with the chord of the dominant seventh, we add a seventh to the *chromatic* chord on the supertonic (§ 279). In the keys of C major and C minor the chord appears thus—



It will be seen that the third of this chord is a chromatic note in the major key, and that both third and fifth are chromatic in the minor key.

296. Just as the chromatic common chord on the supertonic

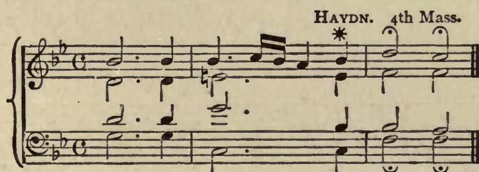
* It has been already seen in §§ 75, 177 that the *diatonic* chord on the supertonic consists of the fifth, seventh, and major or minor ninth of the dominant.

is identical with the dominant chord of the dominant key, the chord we are now considering is identical with the dominant seventh of the dominant key, being distinguished from the latter by its treatment. It is figured like the dominant seventh, but with this difference, that the chromatic notes (the third in the major, and the third and fifth in the minor key) must always be indicated. Thus the two chords shown above would be figured $\begin{smallmatrix}7\\ \sharp\end{smallmatrix}$ and $\natural\begin{smallmatrix}7\\5\\ \sharp\end{smallmatrix}$ respectively.

297. If a modulation to the dominant key be effected by means of this chord, it obviously ceases to be a chromatic chord (§ 274). In order to avoid a modulation, the rules for the treatment of the third of the chord given in §§ 280, 281 must be strictly adhered to. The fifth of the chord is free in its progression; the seventh must either fall a semitone to the third of the dominant chord, or remain stationary, or (in two cases to be presently explained) leap to a note of the following chord.

298. As the chord of the supertonic seventh contains the same notes as the chord of the dominant seventh, it will evidently be susceptible of the same inversions, which will be figured in the same way as the inversions of the dominant seventh, always remembering that *the chromatic note or notes of the chord must in all cases be figured*, except in the first inversion of the chord in the major key, where the only chromatic note is in the bass, and is of course indicated by an accidental.

299. In § 216 we saw that the seventh in the chord of the dominant seventh could sometimes be doubled, even when the generator was present, one of the sevenths being then free to leap as if it were a concord, while the other receives its regular resolution. The same is the case with the supertonic seventh, as in the following example.

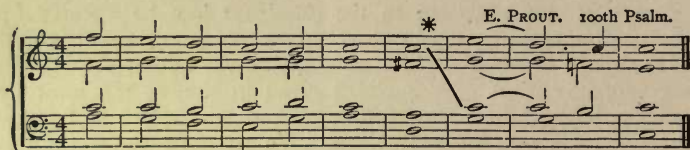


At * the seventh is doubled and the fifth omitted. The seventh in the treble leaps to the third of the following chord, while the seventh in the tenor remains stationary.

300. What was said in the last chapter as to the progression of the supertonic chromatic chord without the seventh applies equally when the seventh is present. If the third rises a semitone (as in the example from Haydn just quoted), the chord

should be followed by some position of the tonic chord; if the third falls a semitone to the subdominant of the key, that subdominant must be a note of the next chord.
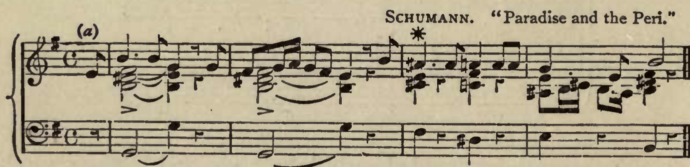
301. Like the seventh in the chord of the dominant seventh, the supertonic seventh may be transferred to another part of the harmony, either with or without a change of chord, provided it is properly resolved in the part in which it last appears. The most usual form of this progression is when the fifth of the chord of the seventh proceeds in the following chord to the note which was the seventh, or to its octave.

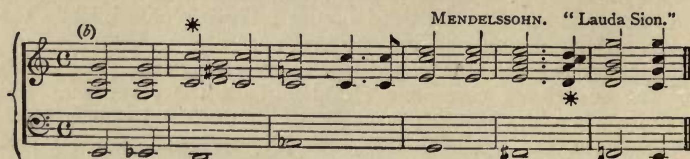


As in the case of the dominant seventh (§ 212), the second inversion of the supertonic seventh is often found without the generator, and in this case the seventh may rise or fall, and may be doubled freely. The prohibition of the doubling of the third (§ 278) still holds good.

302. This chord (like the chromatic common chord on the supertonic §§ 285 (*a*), 291 (*c*)) is the same in both major and minor keys, and the rules given for its treatment apply alike to both. It is important to notice that the chord may be resolved direct on the dominant chord without necessarily producing a modulation, provided that the subdominant of the key, contradicting the chromatically sharpened third, be introduced immediately after the dominant chord. In this case the three chords together must be taken as defining the key (§ 229).

303. We now give a series of examples of this chord, in all its positions, from the works of the great masters. Its employment is so frequent that the only difficulty is to make the best selection.





BACH. "Ach, Gott, wie manches Herzeleid."

(c)

SCHUBERT. Overture, "Rosamunde."

(d)

SCHUMANN. "Bunte Blätter," Op. 99.

(e)

BRAHMS. "Deutsches Requiem."

(f)

SCHUMANN. Novellette, Op. 21, No. 6.

(g)

HANDEL. "Messiah."

(h)

MENDELSSOHN. "Athalie."

(i)

These examples are full of instruction in many respects. At (*a*) is seen the root position of the chord, resolved on the first inversion of the dominant minor ninth. It will be noticed that the seventh exceptionally rises, because the bass goes to the note to which in the ordinary course the seventh would fall. At (*b*) the chord is shown in two forms, first in its root position, resolved on the first inversion of the chromatic chord of the subdominant, and afterwards in its first inversion, resolved on the third inversion of the dominant seventh. In each case the third of the supertonic chord falls a semitone (§ 277).

304. Examples (*c*) and (*d*) show other resolutions of the first inversion of this chord. At (*c*) is an unusual resolution. When the third of the supertonic chord rises, it is generally to some position of the tonic chord; here, however, it is to the root position of the dominant seventh. The C♯ in the tenor is a passing note; and it should be observed that the D♮ in the second crotchet makes no false relation with the D♯ in the first, because the latter note is part of a chromatic chord in the key (§ 244). The regular resolution of the first inversion when the bass rises a semitone (viz., on the second inversion of the tonic chord) is seen at (*d*).

305. The following examples show the different treatments of the second inversion of this chord. At (*e*) it is resolved on the first inversion of the dominant seventh. Here the seventh of the chord, D, leaps downwards, instead of stepping, to avoid doubling the leading note. (Compare example (*a*), where the seventh rises for the same reason.) The A in the left hand part of the present extract is not a part of the supertonic chord, but a "Pedal note," as will be later explained.* Example (*f*) is interesting because here the supertonic chord is preceded by a chromatic concord in the key—the chord on the minor sixth of the major key. The F in the tenor of the second bar is of course a passing note. In this example the third of the supertonic seventh (E♮) rises, and the chord is resolved on the second inversion of the tonic chord. The last bar but one illustrates the change in the position of the dominant seventh referred to in § 216.

306. Our next example (*g*) illustrates what was said in § 302, as to the resolution of the supertonic seventh on the dominant chord without necessarily producing a modulation. The second bar of this extract may, of course, be regarded as a transient modulation to the key of E; but as this is immediately contradicted by the D♮ at the end of the bar, the mental effect of the first chord is rather that of a supertonic chord in A. In the last bar of this example, the second inversion is resolved direct on the root position of the dominant seventh. At (*h*) is seen the second

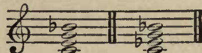
* A "Pedal" is a sustained note, either tonic or dominant, held on through various chords, of some of which it does, and of others it does not form a part. The rules regulating the employment of pedal notes will be given in Chapter XX.

inversion without the generator, which, as already remarked (§ 212), Handel very seldom introduces in the second inversion of a seventh. Here the fifth remains stationary, and the chord is resolved on the first inversion of the subdominant. The student will also notice the exceptional skip from the auxiliary note B at the end of the first bar to E, which may be regarded as a note interposed between the auxiliary note and the harmony note A at the end of the bar. The third inversion of the supertonic seventh is somewhat rarer than the other positions of the chord. At (*i*) is a good example of its use; it is here resolved on the first inversion of the dominant seventh.

THE CHORD OF THE TONIC SEVENTH.

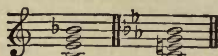
307. The chord of the Tonic Seventh consists of the major common chord on the tonic with the addition of the minor seventh, and is composed of the four lowest notes of the fundamental chord on the tonic given in § 66. Like the dominant and supertonic sevenths, it contains the intervals from its generator characteristic of every fundamental discord, the major third, perfect fifth and minor seventh (§ 61), and, like these chords also, it can be used alike in the major and minor key.

308. The reason why the chord of the tonic seventh in the minor key has not a *minor* third, like the tonic chord, but a major third, will be understood if it is remembered that the tonic common chord is essentially a chord of rest, (§ 195); and therefore the minor third (the 19th harmonic) may be substituted for the major third (the 5th harmonic) because it is still consonant to the notes of the chord above and below it. But the addition of the seventh to the tonic chord changes it at once from a concord to a discord—from a chord of rest to a chord of unrest. We saw in § 199 that the characteristic interval of a fundamental seventh was the diminished fifth between the third and the seventh of the chord. But if we add the minor seventh to a minor chord instead of to a major one,



we get a perfect instead of a diminished fifth between the third and the seventh of the chord. The important interval which before was a dissonance is now a consonance, and the chord is no longer a fundamental discord. For this reason (as will be seen from the examples to be presently given) the great masters when they use this chord in a minor key invariably retain the major third. It is probably also because the tonic is naturally a chord of *rest*, that the great masters use tonic discords so much more rarely than those on the dominant and supertonic.

309. The chord of the tonic seventh



is evidently chromatic in both major and minor keys, the seventh in the former and the third in the latter key requiring an accidental. As regards the notes of which it is composed, it is identical with the chord of the dominant seventh in the subdominant

key, just as the supertonic seventh contains the same notes as the dominant seventh of the dominant key. Also, as in the case of the dominant and supertonic sevenths, the two notes of this chord which require special treatment are the third and the seventh.

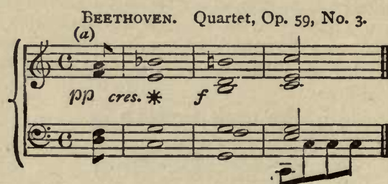
310. The usual progression for the third of this chord is the same as that of the third in the supertonic seventh—it rises or falls a semitone; but it is possible for it also to rise or fall a tone,* or even, exceptionally, to remain stationary as a note of the next chord. The seventh must either rise a chromatic semitone, or fall a semitone or a tone.

311. An important distinction between the tonic seventh and those on the dominant and supertonic is that the latter most frequently resolve on a *concord*, while a tonic seventh almost invariably resolves on either a dominant or a supertonic *discord*. If the seventh rises a semitone, to the leading note, a dominant discord will follow †; if the third rises a tone, to the augmented fourth of the scale, this note forms no part of the fundamental chord of the dominant, and is found in the key only as the third of the supertonic chord. If, on the other hand, the third rises a semitone to the subdominant, this note will be no part of the supertonic chord, and must be treated as the seventh of the dominant, for if made the root of a subdominant chord, we shall have a modulation to the subdominant key, and the preceding chord of the seventh will no longer be chromatic.

312. What was said in §§ 296, 298 about the figuring and the inversions of the supertonic seventh apply equally to the tonic seventh; the chromatic notes must in every case be figured. As with the other two chords of the seventh also, the second inversion is sometimes to be found without the generator.

313. As a general rule tonic discords are much less frequently used by composers than either those on the dominant or supertonic. The following examples will illustrate the use of the various positions of the tonic seventh. It will be observed that no fewer than four are from Bach, whose marvellous genius anticipated nearly all the resources of modern harmony.

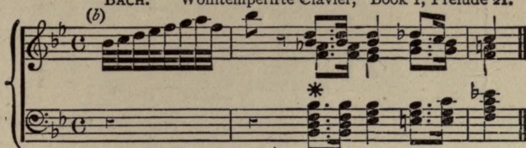
BEETHOVEN. Quartet, Op. 59, No. 3.



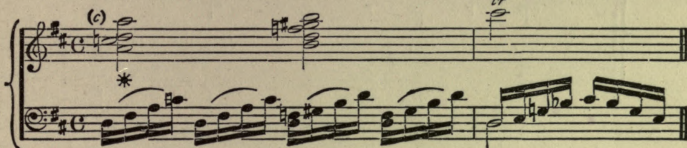
* Obviously the thirds of the dominant and supertonic sevenths cannot rise a tone, as the note a tone above them would not be in the key.

† The only supertonic discord containing the leading note is the very rare supertonic major thirteenth; and it is very doubtful whether any example can be found of the tonic seventh resolving on this chord.
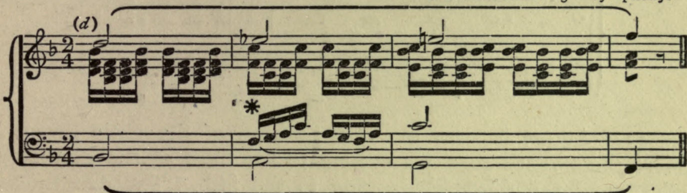
Bach. "Wohltemperirte Clavier," Book 1, Prelude 21.



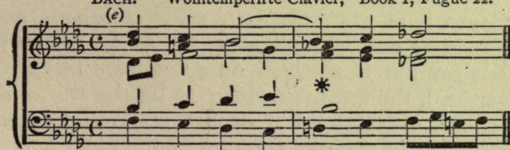
Mendelssohn. "Athalie."



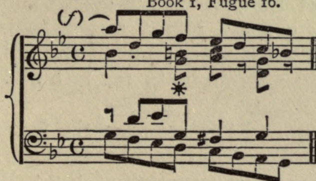
Mendelssohn. 3rd Symphony.
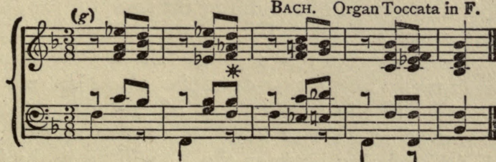


Bach. "Wohltemperirte Clavier," Book 1, Fugue 22.



Bach. "Wohltemperirte Clavier," Book 1, Fugue 16.



Bach. Organ Toccata in F.



(*h*) SCHUMANN. "Bunte Blätter," Op. 99.

HANDEL. "Hercules."

(*i*)

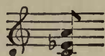
(*k*) SCHUMANN. "Er, der herrlichste," Op. 42, No. 2.

314. At (*a*) is seen the root position of the tonic seventh. Here the seventh rises a semitone to the third of the dominant chord, and the third falls a tone to the fifth. The exceptional doubling of the leading note at the third chord is due to the fact that Beethoven here wants a special effect of fulness and power, and therefore uses the "double string." At (*b*) the root position of the tonic seventh is resolved on a dominant major thirteenth (third inversion), the third remaining to be the thirteenth of the following chord, which chord is in turn resolved on a supertonic minor ninth. At (*c*) the root position of the tonic seventh is resolved direct on the third inversion of the supertonic minor ninth. The progression of the parts is not clearly shown in this extract from the pianoforte score, and a quotation from the full score would occupy too much space; but in the full score the seventh and third each fall a semitone to the fifth and ninth respectively of the supertonic chord.

315. At (*d*), (*e*), and (*f*) are seen the first and second inversions of the tonic seventh, in each case resolved on a dominant discord. At (*d*) the first inversion of the tonic seventh resolves on the second inversion of the dominant seventh, the third of the tonic chord falling a tone, and the seventh rising a semitone. In both the other instances the seventh falls a tone and the third rises a semitone. These two examples also illustrate what was said in § 308 as to the employment of the major third in this chord when used in a minor key. Note also at (*f*) the unobjectionable false relation between the F♮ and F♯ in the fourth and fifth quavers. Example (*g*) shows the second inversion of the

chord resolving on the dominant seventh—the same progression as at (*a*), but in a different position.

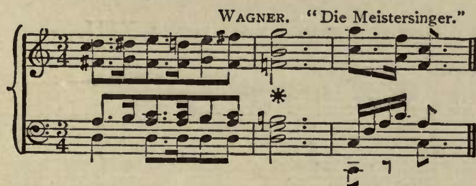
316. The example (*h*) is instructive as the first instance yet met with of incorrect notation. If the student will play the passage, he will feel at once that it is in the key of F. But D♯ is not a note of that key at all. The minor seventh of the tonic is E♭, and its enharmonic cannot belong to the key (§ 69). The note is therefore really E♭, and the chord marked ∗ is properly



being the second inversion of the tonic seventh without the generator. The reason Schumann has used the incorrect notation is because the seventh is resolved a semitone upwards. We shall see in the next chapter that this false notation is very common with chords of the minor ninth; but it is extremely rare with chords of the seventh.

317. At (*i*) is seen the last inversion of the chord of the tonic seventh. The key of this extract is B flat minor; but it was the custom in Handel's time not to write more than three flats in the signature, and to mark the others as accidentals. The chord ∗ is here resolved on the second inversion of the supertonic seventh—the third of the chord exceptionally leaping, instead of moving as usual by step. In our last extract (*k*) the third inversion is resolved on the second inversion of a supertonic major ninth, the third of the first chord being stationary, as in example (*b*).

318. In § 293 it was shown how a chromatic concord could be used for the purposes of modulation. The sevenths treated of in this chapter can also be so employed. Obviously if a supertonic or tonic seventh be quitted as a dominant seventh, it is to be regarded not as a chromatic chord, but as diatonic in the new key (§ 274). But a supertonic seventh may be quitted as a tonic seventh, or *vice versâ*, the chord being chromatic in both keys This method of modulating is not common, as it brings together two unrelated keys (§ 225), but it is occasionally to be met with, as in the following example.



Here what precedes shows that the first bar is in the key of G major. The chord ∗ is taken as the second inversion of the tonic seventh in that key, and left as the second inversion of the supertonic seventh in F major.

319. We shall now conclude this chapter by an attempt to codify the laws governing all the chords of the seventh. As the chords of the ninth, eleventh, and thirteenth are made by adding new notes to this chord, and the notes thus added do not affect the progression of the notes *below* them in the chord, but only of those *above* them, the student will save himself much trouble hereafter if he thoroughly masters the rules for the treatment of the chords of the seventh; for he will then only have to learn in addition the laws for the treatment of the new notes, which are not in themselves difficult.

320. I. RESOLUTION OF A CHORD OF THE SEVENTH.—No chord of the seventh ever resolves on its own root.* The *dominant seventh* resolves on the tonic, submediant, or subdominant chord, or on a supertonic discord. The *supertonic seventh* resolves on a tonic, subdominant, or dominant chord. The *tonic seventh* resolves on either a dominant or a supertonic discord.

321. II. PROGRESSION OF THE THIRD.—The third in a chord of the seventh must never be doubled. In a *dominant seventh* it must either rise a semitone, or fall a semitone or a tone. In a *supertonic seventh* it must rise or fall a semitone. In a *tonic seventh*, it may either rise or fall a tone or a semitone, or it may remain to be a note of the next chord.

322. III. PROGRESSION OF THE SEVENTH.—In the *dominant seventh*, the seventh may rise or fall a semitone or a tone, or it may remain to be a note of the next chord. In a *supertonic seventh*, it must fall a semitone, rise a tone, or remain stationary. In a *tonic seventh* it may either rise a semitone, or fall a tone or semitone. Unlike the sevenths on the dominant and supertonic, the seventh on the tonic may never be doubled.

323. The root and fifth in a chord of the seventh are both unrestricted in their progression; and it must not be forgotten that the chord may change its position before being resolved, when the third and seventh must be properly resolved in the position in which they last appear.

EXERCISES TO CHAPTER XIII.

(I.) Hymn Tune.

* The resolution from Handel given in § 217 (*c*) is quite exceptional and irregular.

(II.)

(III.)

(IV.)

(V.)

(VI.)

(VII.)

(VIII.) Hymn Tune.

(IX.)

(X.)

CHAPTER XIV.

CHORDS OF THE NINTH. ENHARMONIC MODULATION.

324. If to the fundamental chords of the seventh on the dominant, supertonic, and tonic, another third, either major or minor, be added above the seventh, we shall have a chord of the major or minor ninth, on these three degrees of the scale.*

Tonic 9ths.		Dominant 9ths.		Supertonic 9ths.	
Major.	Minor.	Major.	Minor.	Major.	Minor.

The addition of a new note at the top of a chord does not affect the progression of the lower notes, though its own progression will be largely affected by them. The rules for the treatment of chords of the seventh given in §§ 321, 322 are therefore still to be observed, and the only new rules to be learned will refer to the ninth itself.

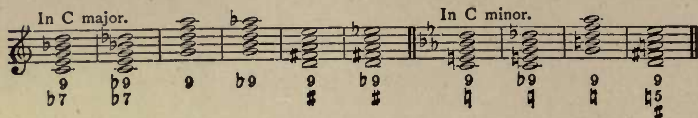
325. It will be seen that a chord of the ninth contains five notes. As most music is written in four parts, one note must evidently be omitted. The seventh is almost always either present in the chord, or, if not, it is added when the ninth is resolved. (See examples (*b*) to § 335 and (*e*) to § 344, later in this chapter.) In the root position, it is generally the fifth of the chord that is absent; but in the inversions the root (which is also the generator) is mostly omitted, though occasionally it is introduced even in the inversions.

326. As the harmonic derivation of tonic major and minor keys is identical (§ 176), it is clear that these fundamental chords of the ninth will be the same in both keys. But, as a matter of actual practice, though all the six chords shown in § 324 can be used in the major key, the major ninths of the dominant and supertonic cannot be used in a minor key, because the ninths of these chords are the major sixth and major third of the scale, which notes in modern music are only used in a minor key when the former is part of the supertonic, and the latter is part of the tonic fundamental harmony.

327. The chord of the ninth in its root position is simply figured 9 when diatonic; but, as with all chromatic chords, any chromatic notes require accidentals to indicate their presence.

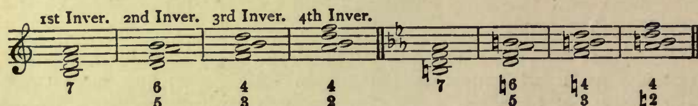
* The harmonic derivation of these chords from their generator is explained in § 63.

To make this clear, we give the whole of the chords of the ninth in the keys of C major and C minor, with their correct figuring.



We have given these chords in five parts, and have in the last chord included the fifth, which is generally omitted, to remind the student of the necessity for figuring that note in the fundamental supertonic chord of the minor key. Though seldom found in the root position, the fifth is frequently present as a chromatic note in the inversions of the supertonic minor ninth.

328. It was said in § 325 that in the inversions of chords of the ninth the root was generally omitted. As the chord contains four notes besides its root it is evidently susceptible of four inversions. As all chords of the major ninth resemble each other as to intervals, and likewise all chords of the minor ninth, it is needless to show each inversion of all these chords. We will take the inversions of the major and minor ninths on the dominant, and the student will be able to write similar inversions of the supertonic and tonic chords for himself.



329. Just as every triad in a minor key, excepting the minor tonic chord, can be used as a chromatic chord in a major key (§ 290), every discord of a minor key can be used as chromatic in a major key, though the converse, as mentioned in § 326, is not the case. Thus the first four chords of the last example cannot be used in the key of C minor; but the last four chords can be employed either in C minor or C major.

330. It will be seen that the figuring of the four inversions of the chord of the ninth is identical with that of the chord of the seventh and its three inversions (Chapter IX.). It is important to remember that figures do not necessarily show the nature of a chord; they simply indicate the distance of the upper notes of the chord from the bass. The 5 and 3 are always implied with a 7, and only marked when an accidental is required. Similarly a 3 is implied with a $\substack{6\\5}$, and a 6 with a $\substack{4\\3}$ and $\substack{4\\2}$, as was seen with the chords of the seventh. But the student need never be in doubt as to whether these figures indicate chords of the seventh or chords of the ninth, if he notices the *intervals* between the different notes. Thus if the first chord of the example in § 328 were a chord of the seventh on B, it would have a *major* third,

and *perfect* fifth (§ 197). The fact that it has a minor third and a diminished fifth shows that B is not the generator, but that it is a first inversion of a ninth.

331. To find the generator of any chord such as that now under consideration, we must remember that all chords are derived either from the tonic, supertonic, or dominant, each of which bears a major third, perfect fifth, and minor seventh as the first notes of its fundamental chord. The chord cannot be derived from C, because the seventh in the chord of C is B♭, not B♮; neither can it be derived from D, for the third of the chord of D is F♯, not F♮. It can therefore only be part of the fundamental chord of G.

332. Unlike the chords of the seventh, all chords of the ninth can resolve upon their own generator. In this case, while the ninth falls one degree, the seventh usually (though not invariably) remains to form part of a chord of the seventh, and is resolved later. A good instance of this will be seen in § 287, example (*c*), where at the end the dominant minor ninth in the key of B minor descends a semitone to the root, while the seventh remains, and is resolved in the next bar.

333. The dominant ninth, whether major or minor, is also allowed to proceed to the third of its own chord, either by rising a second, or falling a seventh, as in the following examples:—

(*a*) BEETHOVEN. Sonata, Op. 53.

cres. *p*

(*b*) BEETHOVEN. Concerto in C minor.

(*c*) BEETHOVEN. Concerto in C minor.

At (*a*) are seen the root positions of the major ninth in the first bar and the minor ninth in the third, the ninth in each case rising to the third of the chord. The interval of the augmented second

in the last bar (§ 91) is not here objectionable. Here the minor ninth is chromatic in the key of C major. At (*b*) the same note is diatonic in the key of C minor, and it is resolved by leaping down to the third of its chord. At (*c*) is the dominant major ninth in the key of D flat, similarly treated.

334. It was said in § 325 that in the root position of this chord the fifth was generally omitted. But in all the examples just given the third is omitted. This is always the case when the ninth resolves on the third, in accordance with a broad general principle that *the note on which a dissonance resolves should not be sounded with that dissonance, excepting only the root with the ninth, which is always allowed.*

335. In the chords of the dominant ninth we sometimes find the ninth resolved freely by leaping to another note of the same harmony.

(*a*) Schubert. Overture, "Fierrabras."

(*b*) Schumann. "Neujahrslied," Op. 144.

At ✱ of (*a*) the dominant minor ninth in F minor resolves on the seventh of the same chord; while at (*b*) the dominant major ninth in E flat resolves on its fifth.

336. As the major ninth if placed below the third of the chord will be a major second below that note, it will frequently sound harsh in that position. It is therefore generally better to put the ninth above the third. But to this rule there is one exception of some importance. A dominant major ninth can always be placed immediately below the third, provided that the ninth proceed direct to the generator while the third remains stationary, as in the following example:—

Dvořák "Stabat Mater."

Between the first and second bars of the above will be seen in the soprano and tenor parts hidden octaves of a kind that are specially prohibited (§ 104). The infraction of the rule here is palliated, if not justified, by the tenor in the first half of the second bar imitating the first half of the soprano of the previous bar.

337. We now give a few examples of various positions of chords of the ninth resolved on their own generators.

SCHUBERT. Impromptu, Op. 90, No. 4.

(a)

MENDELSSOHN. "First Walpurgis Night."

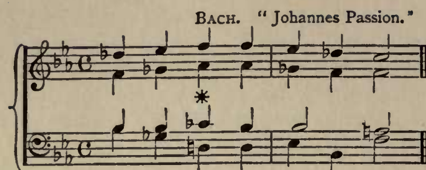
(b)

BEETHOVEN. "Adelaide."

(c)

Example (*a*) shows the first inversion of the dominant minor ninth resolving on its generator. The mental effect of the C♯ and B♯ in the bass must not be overlooked. Each note is considered as the real bass of the harmony for two bars. Here the generator is exceptionally present in the inversion. In the third bar of (*b*) is shown the root position of the dominant major ninth. At (*c*) are seen the third and fourth inversions of the dominant minor ninth, the seventh rising to the generator when the ninth falls (§ 332). In the second bar of this example the last inversion of the dominant ninth is resolved on a different chord, as will be explained directly.

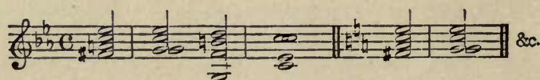
338. The tonic and supertonic ninths are less frequently resolved on their own generators than the dominant ninth. At example (*b*) of § 303, in the fifth bar, the first inversion of the supertonic major ninth is thus treated. We add one example of a tonic minor ninth, also in the first inversion.



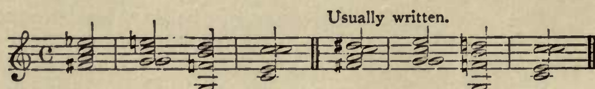
The key of this passage is unquestionably B flat minor. That there is no modulation to E flat minor is proved by the contradiction in the second chord of the second bar of the chromatic D♮. (Compare § 302.)

339. When a chord of the ninth does not resolve on its own generator (or root, which in this case is identical) it always resolves on one of the two other fundamental chords of the same key, unless it is followed by a modulation. Thus a dominant ninth resolves on either a tonic or supertonic chord, a supertonic on a dominant or tonic, and a tonic on a supertonic or dominant chord. The supertonic chromatic triad (§ 279) is, however, rarely if ever used, a supertonic discord being almost invariably employed, while the common chord of the dominant can only follow the supertonic ninth if the chromatic third of the latter chord is immediately afterwards contradicted; otherwise there would be a modulation, the two chords being the dominant ninth and tonic of the dominant key.

340. In resolving the chord of the ninth on a chord with a different generator, the rules given in the last chapter for the treatment of the third and the seventh must be observed. If the fifth is present in a chord of the major ninth, care must be taken that it does not move so as to make consecutive fifths with that note. When resolved on a different generator, the ninth may not only rise or fall, but under some conditions remain to be a note of the next chord. If, for instance, the supertonic ninth resolves on the tonic chord, the minor ninth in a minor key and the major ninth in the major key will remain as the third of the following chord.



341. When a minor ninth is taken as a chromatic note of a chord in a major key, and resolves *by rising a semitone*, it is usual to write the ninth as an augmented octave of its generator—*e.g.*



This theoretically inaccurate but convenient notation is the

probable explanation of the common method of writing the chromatic scale which was shown in § 269.*

342. We now give some examples of chords of the ninth resolving on other than their own roots. When it is remembered that there are six of these chords, each of which has five positions, and each position several resolutions, it will be seen that it is impossible within reasonable limits to give an exhaustive series of illustrations. All that can be done is to give a few characteristic progressions; the student, if he will analyse the works of the great masters, will find plenty of others for himself.

(*a*) Bach. Organ Fugue in F minor.

(*b*) Schumann. "An der Sonnenschein," Op. 36, No. 4.

(*c*) *tr* Graun. "Te Deum."

(*d*) Spohr. Double Quartet, Op. 136.

* The irregularity in the notation of the minor ninth when it is resolved by rising a chromatic semitone is well shown in the following extract from Beethoven's Sonata in E flat, Op. 31, No. 3:—

343. These three extracts show some of the most frequent progressions of the root position of the chord of the ninth. At (*a*) is seen first the second inversion and then the root position of the dominant minor ninth of C minor, resolved on the root position of the tonic. At (*b*) is the dominant major ninth also resolved on the root position of the tonic. At (*c*) is a fine example of the first inversion of the dominant major ninth, resolved on the chord of the tonic. In order to avoid the consecutive fifths which would occur between the fifth and ninth of this chord if both were resolved at once (§ 340), the third and fifth of the tonic chord are delayed by auxiliary notes. At (*d*) we find first the second inversion of the dominant minor ninth resolved on the *first inversion* of the tonic chord, to avoid breaking the rule given in § 101. In the second bar of this example is a second inversion of a supertonic major ninth, followed by the root position of the same chord, and resolved on a dominant thirteenth. Note the progression of the third of the supertonic chord (§ 281).

344. We now give some examples of the first inversions of chords of the ninth.

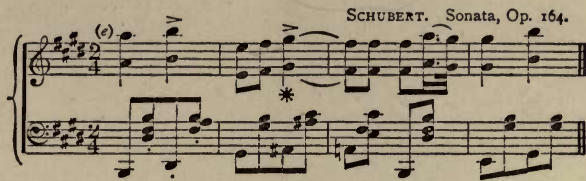
(*a*) HANDEL. "Hercules."

(*b*) HANDEL. "Israel in Egypt."

(*c*) BACH. "Wahrlich ich sage Euch."

(*d*) SPOHR. Nonetto, Op. 31.

sf *p*
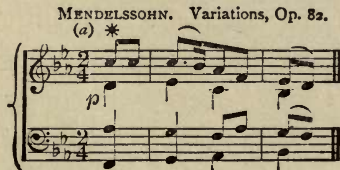


At (*a*) is seen the supertonic minor ninth of E minor resolved on the third inversion of the dominant seventh of the same key. At (*b*) is a beautiful example of the supertonic major ninth resolved on the tonic chord. Here the seventh and ninth are both stationary. Compare the auxiliary note D♮ in the third bar (making a diminished octave with the D♯ of the harmony) with the example from Beethoven in § 261.

345. The quotations (*c*) and (*d*) show how a chord of the ninth may be used for the purpose of modulation. The first bar of (*c*) is evidently in the key of E major, and the second bar no less clearly in F♯ minor. The chord * in the notation here given does not belong to E major at all, as E♯ is not a note in that key. But in effecting a modulation there should always be a connecting link between the two keys. In the present case the chord is taken as the last inversion of the tonic minor ninth of E, the bass note being really F♮; for this F♮ its enharmonic, E♯, is substituted, whereby the chord is changed to the first inversion of a minor ninth on C♯, the dominant of F♯ minor, and it is resolved on the tonic of that key. Here is an instance of *enharmonic modulation*, of which we shall have more to say later in this chapter.

346. The example at (*d*) is somewhat different. Here there is no enharmonic change, but the first chord of the second bar is taken as a dominant ninth in B♭, and quitted as a tonic ninth in F, being resolved on the supertonic ninth of that key. In example (*c*) of § 337 we see a dominant ninth resolving on a supertonic ninth.

347. Our last extract (*e*) shows a beautiful and somewhat unusual resolution of the supertonic ninth on the third inversion of a dominant eleventh. Many other resolutions could be given did space allow.

348. The second inversion of chords of the ninth is somewhat less frequently used than the first; still it can hardly be called rare. The following examples will illustrate its treatment.



MOZART. Quartett in G.

(*b*)

MENDELSSOHN. "Elijah."

(*c*)

SPOHR. "Fall of Babylon."

(*d*)

At (*a*) is the second inversion of a dominant major ninth resolved on the first inversion of tonic harmony. At (*b*) the second inversion of the supertonic minor ninth is resolved on the second inversion of the tonic chord. At (*c*) the second inversion of a supertonic major ninth is resolved on the first inversion of the dominant minor ninth; and lastly at (*d*) the second inversion of the tonic minor ninth is resolved on the root position of the dominant seventh. Notice in this last example that the minor ninth, F♭, is written as E♮ because it resolves a semitone upwards (§ 341). The student should carefully examine the progressions of the third, seventh, and ninth in all these examples.

349. The examples now to be given of third inversions of ninths will repay careful study.

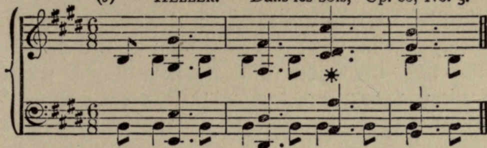
BEETHOVEN. Symphony in D.

(*a*)

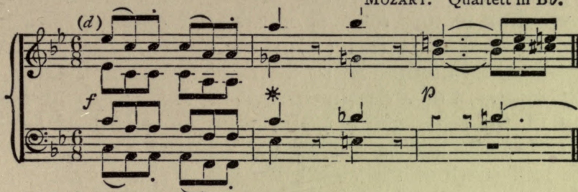
MENDELSSOHN. "St. Paul."

(*b*)

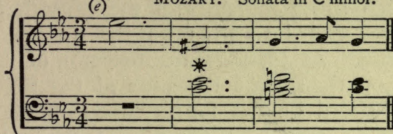
(*c*) HELLER. "Dans les bois," Op. 86, No. 3.



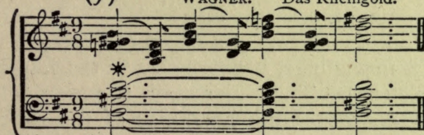
MOZART. Quartett in B♭.



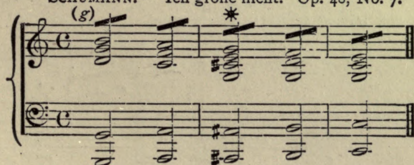
MOZART. Sonata in C minor.



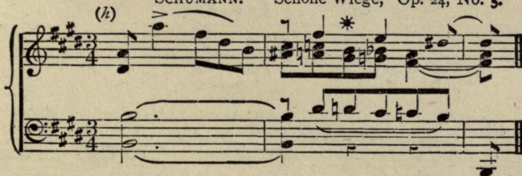
(*f*) WAGNER. "Das Rheingold."



SCHUMANN. "Ich grolle nicht." Op. 48, No. 7.



SCHUMANN. "Schöne Wiege," Op. 24, No. 5.



At (*a*) the note D in the chord ✶ is not a note of the harmony, but a pedal note (see note to § 305). In the third inversion of a dominant minor ninth, it is by no means uncommon for the

seventh of the chord to leap down, as here, to the tonic, instead of descending by step to the third of the chord. At (*b*) is seen the usual resolution of the third inversion of the dominant major ninth on the first inversion of the tonic chord, while at (*c*) is shown the same resolution, but with this difference that (as in example (*a*) of § 337) the root is exceptionally retained in the inversion. Example (*d*) gives the third inversion of a dominant minor ninth resolved on the first inversion of a supertonic minor ninth, which in its turn resolves on the tonic chord.

350. Examples (*e*) and (*f*) show other resolutions of the supertonic minor ninth. At (*e*) the third inversion is resolved on the first inversion of a dominant seventh, and at (*f*) on the root position of the tonic chord. The third inversions of the tonic minor and major ninths are seen at (*g*) and (*h*). At (*g*) the seventh and ninth of the chord, B♭ and D♭, are written as A♯ and C♯ because of their resolving upwards (§ 341); the change of notation is much less frequent with the seventh than with the ninth. Here the chord resolves on the first inversion of the dominant seventh. At (*h*) the third inversion of the tonic major ninth resolves on the second inversion of the supertonic minor ninth, and this chord on the fourth inversion of the dominant eleventh. In this example A♯, the third of the supertonic chord is quite exceptionally written as B♭, because it resolves downwards. (Compare § 269, at the end.)
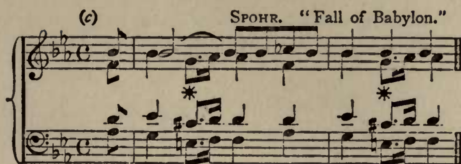
351. The fourth inversion of a chord of the ninth will evidently have the ninth in the bass, because that is the fourth note above the generator (§ 150). The major ninth is seldom if ever used in this position, because of the harshness of the ninth below the third. We have given an example of the fourth inversion of the dominant minor ninth at (*c*) § 337, we now add a few specimens of supertonic and tonic ninths thus employed.

MENDELSSOHN. Octett.

(*a*) *f*

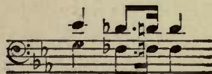
BEETHOVEN. Quartett, Op. 18, No. 3.

(*b*) *p*
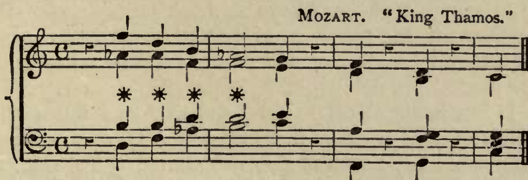


In the very fine progression at (*a*) the last inversion of a supertonic minor ninth is resolved on the second inversion of a dominant major ninth, the latter resolving upon its own generator. At (*b*) we have the last inversions of a tonic minor ninth in the second, and of a supertonic minor ninth in the third bar. In both chords we find examples of the theoretically inaccurate, but convenient notation mentioned in § 341. The tonic ninth in the second bar *as written* could only be derived from E♮ as a generator; but if it were so derived it could not possibly resolve on a chord of the seventh of F; for E♮ and F not only are not generators in the same key, but they are not even generators in related keys. In all chords of the ninth (as well as in those of the eleventh and thirteenth, to be subsequently described), the student must carefully examine the notation before he can decide on the nature of the chord.

352. Another instance of false notation, exactly similar to that just spoken of, is seen at example (*c*). Here both the seventh and ninth of the tonic ninth are written inaccurately, partly because both resolve upwards, partly also, no doubt, because the passage occurs in a chorus, and is far easier to sing with the notation given than if it had been correctly written thus:

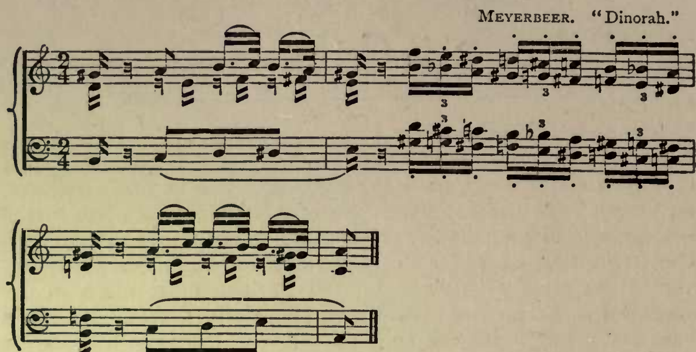


353. Like the chords of the seventh (§ 216), chords of the ninth can change their position, being resolved in the position in which they last appear. The following example shows all the inversions of the chord of the dominant minor ninth.



354 The first inversion of the chord of the minor ninth, the generator being omitted, is commonly known as the *chord of the diminished seventh.* It is clear that there are three of these chords in every key, and it is by no means uncommon to find a

succession of them, each part moving a semitone, without producing a modulation, as in the following example :—

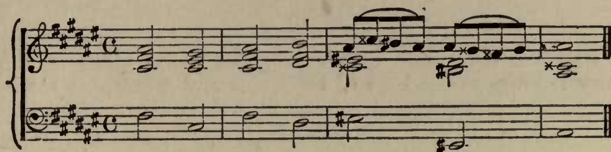


In order to make the progression of the harmony in the second bar easier to the student, we have given each chord with its correct notation. Meyerbeer has written them in a very promiscuous manner. The first diminished seventh is the first inversion of the dominant minor ninth ; this resolves on the third inversion of the tonic minor ninth, which again is followed by the second inversion of the supertonic minor ninth; then the series (dominant, tonic, supertonic) recommences, but each time with a different inversion. The music continues in A minor throughout.

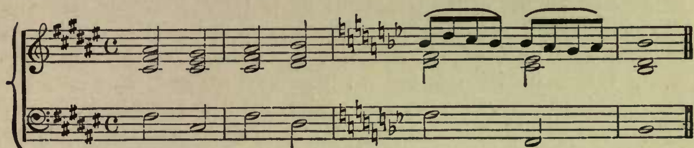
355. But the chord of the diminished seventh is of great importance from its use in modulation. We have already seen (§§ 235, 236, 318, &c.) how to modulate by taking a chord as belonging to one key, and quitting it as a different chord of another key. Clearly we can apply the same method to the chord now under consideration. For instance, the chord may be the first inversion of a dominant minor ninth in C major or minor, of a supertonic minor ninth in F major or minor, or of a tonic minor ninth in G major or minor. It is evident that it may be taken in any one of these keys, and left in any other of the six. But its utility for the purposes of modulation by no means ends here. A little explanation is necessary to enable us to understand its further use.

356. It has been already said (§ 52) that two notes which are enharmonics of one another (*e.g.* G♯ and A♭), can never both be used in the same key; it was also mentioned (§ 83) that, to avoid the use of double sharps and double flats, an enharmonic change of notation was not infrequently employed, especially in "extreme keys," that is, keys with many flats or sharps in the signature. If, for instance, being in the key of F♯ major, we wish to modulate to the mediant of that key (A♯) which would have ten sharps

(three double sharps) in the signature, it would make the music difficult to read were it written thus—



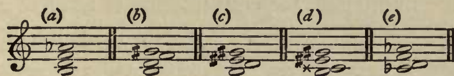
Even an experienced player might stumble at first sight over such a passage. It is therefore much more convenient to mark a change of signature, and substitute for the key of A♯ its enharmonic, B♭, as follows—



The passage is now perfectly easy to read.

357. It must be especially noticed that here the change of notation makes no difference whatever in the progression of the harmonies. Every chord is exactly the same as before. If the student will transpose the above passage a semitone higher or lower, he will find that no change is required. We have here therefore simply an *enharmonic change of notation.*

358. If, however, by enharmonically altering one or more of the notes of a chord we change the harmonic origin of the chord, so that its altered notation induces a different progression of the harmony, we get an *enharmonic modulation.* We have already met with one case of this in example (*c*) of § 344; and the chord of the minor ninth lends itself to this process more readily than any other. If, for instance, we take the chord given in § 355, we can change any of its notes enharmonically; each change alters the nature of the chord, and gives it a new generator.



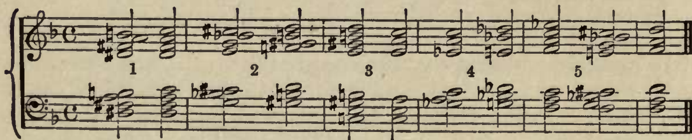
We have already seen that the chord at (*a*) is the first inversion of the minor ninth of G, and belongs to the keys of C major, C minor, F major, F minor, G major, and G minor. If now for A♭ we substitute G♯—as at (*b*)—the nature of the chord is changed. It is no longer derived from G, but it is the second inversion of the minor ninth of E, and is dominant in A major and A minor, supertonic in D major and D minor, and tonic in E major and E minor.

359. Now take E♯ instead of F♮, as at (*c*), and the chord becomes the third inversion of the minor ninth of C♯, and evidently belongs to the keys of F♯ major and minor, B major and minor, and C♯ major and minor. Again changing D♮ to C×, the chord is the fourth inversion of the minor ninth of A♯, (*d*). It now belongs to the keys of D♯ major and minor, G♯ major and minor, and A♯ major and minor. As these three major keys are very rarely used, their enharmonics, E♭, A♭, and B♭, being employed instead, the chord is for these keys written as at (*e*) where it is the last inversion of the minor ninth of B♭. It should be noticed that while between each of the chords (*a*) (*b*) (*c*) and (*d*) there is an enharmonic *modulation*, there is only an enharmonic *change of notation* between (*d*) and (*e*) as the generator A♯ of (*d*) is the enharmonic of the generator B♭ of (*e*).

360. It will thus be seen that any chord of the diminished seventh can be used, by enharmonic modulation in every key, being taken in its relation to the key quitted, and resolved (as dominant, supertonic, or tonic) in the new key entered. When a modulation is thus effected, it is usual to write the chord in the notation of the key which is being approached, as in 344 (*c*), where the chord was taken as a tonic ninth, and resolved as a dominant ninth (§ 345), being written in the notation of F♯ minor, and not of E major. In this example it is used to modulate to a nearly related key (§ 227), but it is frequently also employed for modulations to more remote keys. A familiar example of this will be seen in the recitative "Thy rebuke hath broken his heart" in the "Messiah." The passage is too long to quote; but if the student will refer to it, he will find in the sixth bar a modulation from G minor to E minor, and at the thirteenth bar a modulation from D minor to B minor by means of a diminished seventh, taken in each case as a last inversion, and quitted as a first inversion of a ninth, B♭ being in both passages changed to A♯.

361. The following magnificent progression is one of the finest existing examples of enharmonic modulation by means of the chord of the diminished seventh, and deserves careful analysis. The bars are numbered, for convenience of reference.

BACH. "Chromatic Fantasia."
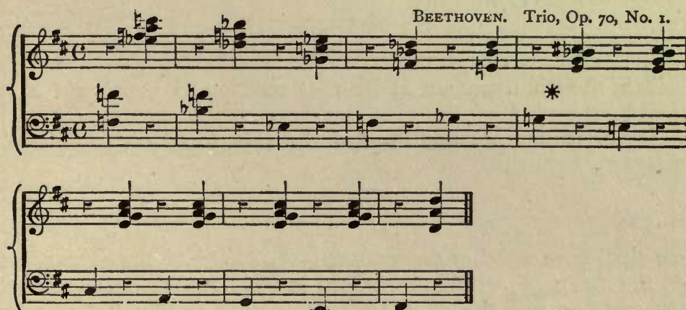


The first bar gives the first inversions of the dominant seventh and dominant minor ninth in the key of E minor. The first chord of the second bar is taken as the last inversion of a supertonic minor ninth (with A♯) in E minor, and quitted as the third

inversion of a tonic ninth in A minor, resolving on the first inversion of the dominant ninth in the same key. The third bar continues in A minor, the first chord being the last inversion of a dominant minor thirteenth (as will be explained later), and the second being the first inversion of the tonic minor triad.

362. At the beginning of the fourth bar there is clearly a modulation, for the notes E♭ and G♭ in the first chord are not in the key of A minor at all. This chord as written can only be derived from F; therefore the chord is taken (with F♯ and D♯) as the second inversion of a supertonic minor ninth in A minor, then changed enharmonically to the last inversion of the minor ninth of F. But whether F is a tonic, supertonic, or dominant can only be seen from the context. The first chord of bar 5 is the dominant seventh of B flat; we therefore look on bar 4 as being in this key. The first chord is the last inversion of the dominant minor ninth, while the second is the second inversion of the supertonic minor ninth. The last two chords of our example are dominant minor thirteenth and tonic of D minor; the second chord of bar 5 is taken (with D♭) as the second inversion of a supertonic ninth in B flat (F being a pedal note, and not a part of the harmony), and quitted, as just said, as a dominant thirteenth, in which F is a note of the chord.

363. The student will probably find this analysis somewhat difficult to follow; but it is so instructive, as showing the nature of enharmonic modulation, that it is well worth careful study. It ought to be added that Bach's part-writing is here, as in most of his works, somewhat free. We will now give a more modern example of the same method, showing how enharmonic modulation can be used to connect two very remote keys.



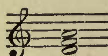
This passage begins in B♭ minor. At ∗ the first chord is taken (with D♭) as the second inversion of the supertonic minor ninth in that key (generator C); then by the enharmonic change from D♭ to C♯ the generator changes to A, and the chord becomes the third inversion of the dominant minor ninth of D The ninth resolves on its root in the following bar, and the

dominant seventh which remains is resolved, after several changes of position, on the tonic chord.

364. While the chord under consideration offers an easy means of modulation to any key, it is well to warn young composers not to use it too freely for this purpose. A modulation to a remote key can often be quite as well effected by some other means, and the too frequent use of diminished sevenths soon becomes monotonous, and palls on the ear. To modulate almost exclusively by this chord would show great poverty of invention.

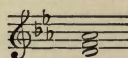
365. The first inversion of the dominant major ninth is sometimes called the "Chord of the seventh on the leading note," and sometimes simply the "Leading Seventh." It is a far less important chord than the chord of the minor ninth. An example of its use has been given in § 342 (*c*).

366. If both root and third are omitted in the chord of the dominant *major* ninth, the remaining notes (the fifth, seventh, and ninth) form the diatonic chord on the supertonic of the major key (§ 75).



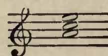
This chord is now a concord; for the root and third are the only notes with which the seventh and ninth are dissonant, and *in considering the progression of the upper notes of a fundamental chord, only such notes are to be taken into account as are actually present in the chord.* We shall see this principle more fully illustrated when we come to chords of the eleventh and thirteenth.

367. If the root and third are omitted in the chord of the dominant *minor* ninth, we shall have the supertonic triad of the minor key (§ 177),



which, though dissonant in its root position, is consonant in its first inversion.

368. If the root and third of the supertonic major ninth be omitted,



we shall have another consonance—the chord of the submediant in the major key. What was said in § 366 applies equally here.

369. As with the chords of the seventh in the last chapter, we shall conclude with summarising the rules for the treatment of the chords of the ninth.

I. RESOLUTION OF THE CHORD.—A chord of the ninth may resolve on its own generator, or on one of the other two generators in the same key. The third and seventh of the chord follow the rules relating to chords of the seventh; the fifth is free.

370. II. Progression of the ninth.—When a chord of the ninth resolves on its own generator, the ninth descends one degree to the octave of the generator, or, if it be a dominant ninth, may proceed to any other note of the same chord. If the chord resolve on a chord having a different generator, the ninth may either rise or fall a second, or it may remain to be a note of the next chord.

371. III. In the inversions of chords of the ninth, the root is generally omitted. The first inversion of a chord of the minor ninth is generally called the chord of the Diminished Seventh, and differs from all other chords in the fact that by means of enharmonically changing one or more of its notes it can be used for modulation between any two keys.

Exercises to Chapter XIV.

(I.)

(II.) Hymn Tune. (*a*)

(*a*) For the notation of this chord, see §341, also example (*d*) of §348. In the remaining exercises the minor ninth will frequently be thus written, that the student may become accustomed to the false notation so often used by the great masters.

(III.)

(IV.)

(V.)

(VI.) Hymn Tune.

(VII.)

[In the following exercises enharmonic modulations by means of the chord of the diminished seventh (§§ 358, 359) are introduced.]

(VIII.)

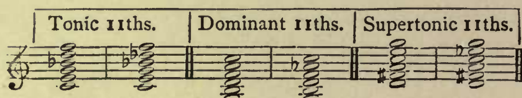
(IX.)

(X.) Hymn Tune.

CHAPTER XV.

CHORDS OF THE ELEVENTH.

372. If we proceed still further to develop the fundamental harmonies of a key by adding another third to the chords of the ninth treated of in the last chapter, we shall obtain a series of chords of the eleventh. The new note now to be added is always a perfect eleventh (the octave above the perfect fourth) above the generator (§ 64); but as the chord of the ninth may be either major or minor, there will be six varieties of the chord of the eleventh, three of which will contain major and three minor ninths.



All these chords are *possible* in a major key; but the prohibition of the dominant and supertonic major ninths in a minor key (§ 326) applies equally to those forms of the chord of the eleventh which contain a major ninth from these two generators.

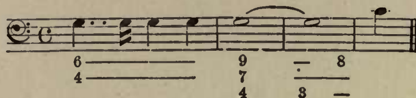
373. Some theorists deny the existence of chords of the eleventh altogether; but there are many combinations, especially in modern music, which it is quite impossible to explain satisfactorily and clearly on any other hypothesis.

374. Although we have given above six possible chords of the eleventh, only those on the dominant are in frequent use. A few exceptional cases of the employment of tonic and supertonic elevenths will be given later in this chapter.

375. The chord of the eleventh in its complete form contains six notes; it will therefore be necessary in four-part writing to omit at least two of these notes. As the eleventh is a dissonance, the usual resolution of which is by descent of a second, the third is mostly omitted in accordance with the general principle given in § 334. Either the fifth or ninth of the chord is also generally omitted; but the seventh is usually present, though occasionally this note is only added when the eleventh is resolved, as in the example to § 240, at the last chord of the second bar.

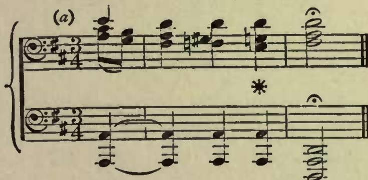
376. Unlike the ninth, which seldom appears at a less distance than a ninth from its generator—never, indeed, excepting occasionally when it is resolved on its third—the eleventh may, and often does, occur at the interval of a fourth above its generator.

It is then sometimes figured 11, but more frequently 4, and the remaining figures of the harmony indicate the true nature of the chord. As an instance of this, let the student refer to example (*b*) of § 337, where the chord in the second bar is a dominant eleventh in its root position with the 7th and 9th. The bass would be figured thus:—

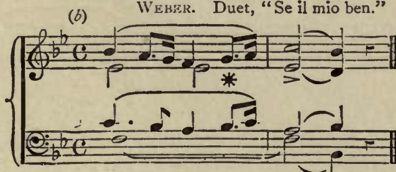


It has been already said that in figuring a chord the largest numbers are generally placed at the top.

377. Like the chords of the ninth, the chord of the eleventh may either resolve on its own generator,* as in the example just referred to, where the eleventh resolves before the rest of the chord, or on one of the other generators in the key. When the generator is present, the chord seldom resolves on a different generator, though even in this case the dominant eleventh occasionally resolves on a tonic chord, as in the following example:—



Here the third chord from the end is a supertonic minor ninth, the A in the bass being a dominant pedal (§ 305, Note); the chord ✱ is a dominant eleventh, with the third and ninth omitted. In this case the eleventh remains to be a note of the following chord (compare § 340). When the eleventh moves, it will go either one degree down, to the third, or one degree up, to the fifth of its own generator. When in the root position of this chord the eleventh rises to the fifth, the ninth is usually also present, and rises to the third as below. (See also Exercise VI., at the end of the chapter, at (*a*).)



* Of course it is not meant by this that the *note itself* (the eleventh) falls a fourth to the generator, but only that it is followed by another harmony on the same generator.

378. The chord of the eleventh, as it consists of six notes, can of course have five inversions. As these are somewhat more complex than the inversions of the ninth, we shall treat them separately.

379. Owing to the harsh dissonance of the third against the eleventh, the first inversion of this chord is rarely used. We give two examples.

(*a*) C. P. E. BACH. Fantasia in C minor.

(*b*) WAGNER. "Parsifal."

At (*a*) is the first inversion of the eleventh on F, the eleventh rising to the fifth of the chord. It will be seen that the generator is present; this is much more frequent with inversions of chords of the eleventh than of the ninth. At (*b*) is a peculiarly harsh first inversion of the eleventh of C, the eleventh resolving on the third, and thus breaking the rule given in § 334. This is not recommended for imitation; Wagner has no doubt introduced this very rough dissonance for the sake of the dramatic effect. The E♭ and D at the beginning of the last bar are chromatic passing notes.

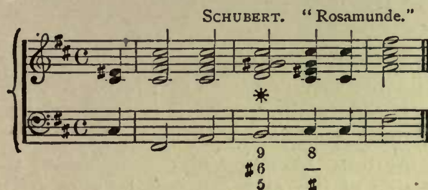
380. The second inversion of this chord is to be found both with and without its generator. In the following example

BACH. Organ Prelude in E♭.

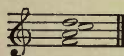
the generator and the seventh are both present, and the eleventh resolves on the third of the chord (§ 377). We have given the figuring below the chord. It need hardly be said that the manner in which the chord is figured will depend on the notes which are present. An example of the second inversion without the gener-

ator will be seen at § 160 example (*g*) in the fourth quaver of the third bar. Here the chord on the bass note B contains the *minor* third, perfect fifth, and minor seventh. Like a chord of the seventh, it would be figured 7 only; but the fact that the third from the root B is minor and not major proves that B is not the *generator* of the chord, but only the root. The second inversion of the eleventh when the generator is absent is like a chord of the seventh with a minor third—and in a minor key with a diminished fifth also.

381. The third inversion of the chord of the eleventh, having the seventh in the bass, is in frequent use. The generator is rarely used with this inversion. In the following example



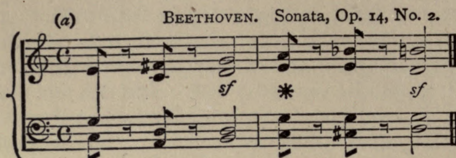
the generator is clearly treated as a *pedal* note above the other parts; for if Schubert had looked upon the note as a part of the chord, the B in the bass would have fallen, instead of rising. The more usual form of this inversion contains only the fifth, seventh, ninth, and eleventh of the chord.
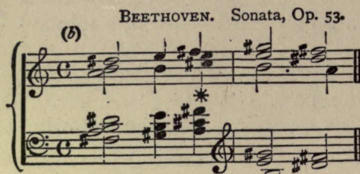


As the chord in this shape resembles the common chord on the subdominant with the sixth added to it, it is generally called the "Chord of the Added Sixth." It is figured $\substack{6\\5}$, like the first inversion of a chord of the seventh, from which it may be distinguished by the fact that it has a *major* sixth above the bass note, while the first inversion of a chord of the seventh has always a *minor* sixth.

382. The term "added sixth" is somewhat misleading. Clearly the chord cannot be derived from the subdominant; because this note is not a generator in the key (§ 70), and the subdominant chord itself is merely a portion of the fundamental chord on the dominant (§ 75).

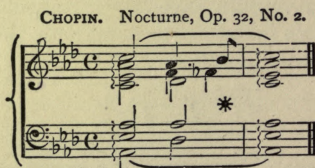
383. The third inversion of the dominant eleventh can resolve either on its own generator or on one of the other two generators in the key. In the form now under consideration (with both generator and third absent), the seventh is no longer a dissonance (§ 366) and is free to rise or fall. An example of the chord resolving on its own generator has already been given in § 344 at the third bar of the extract (*e*); we now add two short examples of resolutions on the other generators.



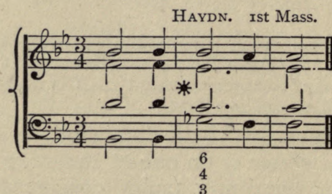


At (*a*) the chord ✱ is the third inversion of the dominant eleventh in G resolved on the first inversion of the supertonic minor 9th; at (*b*) the same chord in the key of E is resolved on the second inversion of the tonic chord.

384. Like the third inversion of the dominant ninth (§ 349), the third inversion of the eleventh can be resolved on the root position of the tonic chord, the seventh being free to leap, as in the following example:—

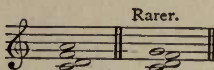


385. The fourth inversion of the dominant eleventh, which has the ninth in the bass, is scarcely ever found with the generator present, owing to the harshness of the effect of that note above the ninth. Its most usual form is with the fifth, seventh, and eleventh above the ninth, as in the following example:—
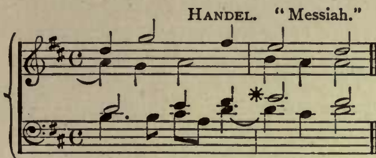


It will be seen that the figuring of this chord is identical with that of a second inversion of a chord of the seventh, from which it may be distinguished by the nature of the intervals. (Compare § 381.) Another example of this inversion may be seen in the last bar of extract (*b*) in § 275.

386. The last inversion of this chord, with the eleventh in the bass, has generally the fifth, seventh, and ninth above it, though occasionally the generator is used instead of the ninth.



This inversion is seldom resolved on any but its own generator. One example of its use will suffice.

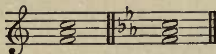


We shall now, as with the chords of the seventh and ninth, sum up the rules for the treatment of the chord of the dominant eleventh.

387. I. Resolution. A chord of the dominant eleventh resolves either on its own generator, or on one of the two other generators in the same key. In its root position, and in its fourth and fifth inversions it mostly resolves on its own generator. The first inversion is very rarely met with.

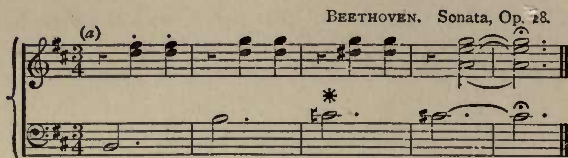
388. II. Progression. All the notes of the chord up to and including the ninth follow the rules for their progression given in previous chapters. The seventh and ninth are free in their progression when none of the lower notes of the chord with which they make dissonances are present. If the chord resolve on its own generator, the eleventh either falls to the third or rises to the fifth of the chord. If it resolve on a different generator, the eleventh mostly remains to be a note of the next chord.

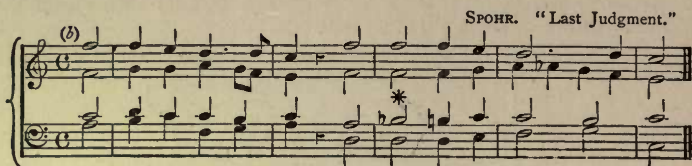
389. If the generator, third, and fifth of the chord are all absent, the seventh, ninth, and eleventh give the triad on the subdominant (§§ 75, 177).



As none of these notes are dissonant with one another, the chord is a concord, and the eleventh (the fifth of the chord) is now free in its progression.

390. The chords of the eleventh on the tonic and supertonic are very rare, and far less important than that on the dominant. They are seldom, if ever, found with the generator present, and are generally used either with the seventh, ninth, and eleventh only, in which case the chord is a consonance, or with the fifth, seventh, ninth, and eleventh, when the eleventh is a dissonance with the fifth. A few illustrations of their employment are all that will be needed here.
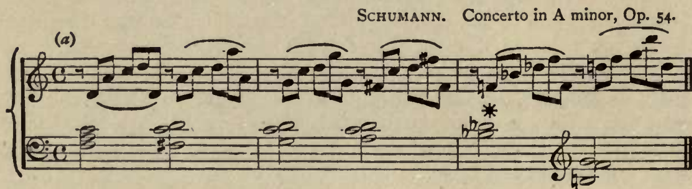


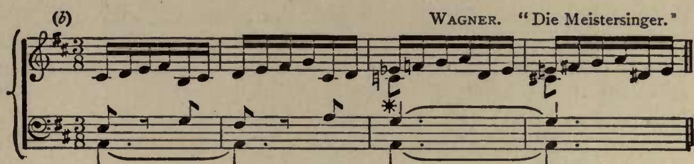


At (*a*) is shown in the third bar the third inversion of the tonic eleventh with the *minor* ninth. The context unmistakably shows the key of the passage to be D. But in this key there is no D♯; this note therefore is clearly the minor ninth of the tonic (E♭), written as an augmented octave because its resolution is a semitone upwards (§ 341). It is also evident that the generator of this chord must be D, since neither of the other generators in the key (E and A) can give E♭ as one of their harmonics. The chord therefore is a tonic eleventh.

391. At (*b*) is seen the fourth inversion of the tonic eleventh with the *major* ninth. All that precedes the chord * is evidently in the key of C, as also is all that follows it; therefore the chord * must be in C (§ 272). As every chord in a key must be derived from one of the three generators of that key, it follows that the chord in question must be derived either from C, D, or G, the three generators of the key of C. As each generator produces its *major* third, it follows that the chord * cannot be derived from D, or it would have F♯, not F♮. Neither can it be derived from G, for it would then have B♮, not B♭. It can therefore only be derived from C, from which generator D is the major ninth, B♭ the seventh, and F the eleventh.

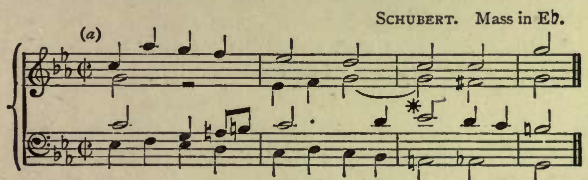
392. The two illustrations now to be given differ in some respects from those already quoted.

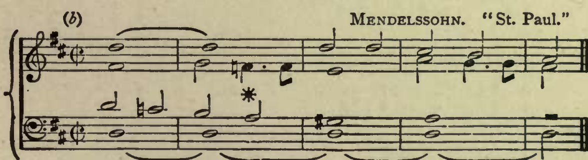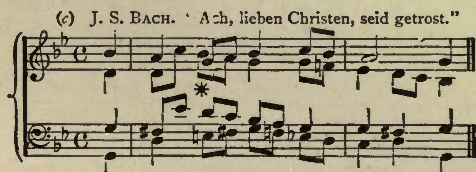




At (*a*) is seen the same combination of the tonic eleventh as that shown in § 390 (*a*); but in this case it is approached from the second inversion of the supertonic seventh of the same key. At (*b*) we find the second inversion of the tonic eleventh resolved on the root position of the dominant seventh.

393. The chord of the eleventh on the supertonic is even rarer than that on the tonic. It can be so seldom employed that it is needless to give rules for its use. The following examples will suffice as illustrations:—







The chord at (*a*) is evidently not a dominant chord in C minor because the major ninth is not allowed in this chord in a minor key (§ 372); neither is it a tonic chord, because it contains E♭, and all tonic discords have a *major* third (§ 308); the chord * must therefore be a supertonic eleventh.

394. The chord * of example (*b*) requires a little explanation. It cannot be a minor chord on the tonic; because if there were a modulation to the minor key the B♮ of the preceding chord would certainly have been B♭; neither can it be derived as a chord of the dominant minor thirteenth; for a chord of the

thirteenth is never found with only the generator, eleventh, and thirteenth present, as will be seen in the next chapter; the chord in question therefore consists of the seventh, minor ninth, and eleventh of the supertonic, here resolved upon its own generator (see note to § 290).

395. In example (*c*) the form of the chord is the same as at (*a*); but it is here preceded by a dominant ninth, and resolved on the first inversion of the dominant seventh without the generator, *i.e.*, the root position of the diminished triad on the leading note (§ 207). These examples will sufficiently show the treatment of this chord.

EXERCISES TO CHAPTER XV.

[In the exercises now to be given many new combinations of figures will be met with. These will show which notes of the chord of the eleventh are present. The student must remember what has so often been said—that figures only show the intervals made by the upper parts with the bass.]

(I.)

(II.) Hymn Tune.

(III.)

(IV.) Hymn Tune.

(V.)

(VI.) Hymn Tune.

(*a*) The unusual order of the figures here ($\frac{3}{5}$) shows that the 9th of the last chord resolves on the 3rd and the 11th on the 5th.

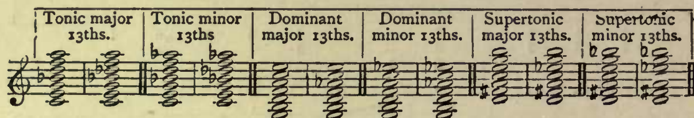
(VII.)

(VIII.)

CHAPTER XVI.

CHORDS OF THE THIRTEENTH.

396. To the chords of the eleventh treated or in the last chapter another third, either major or minor, can be added. This will give the chords of the major and minor thirteenth on each of the generators in the key. The chords in their complete form will be the following:—



As each major and each minor thirteenth can have either a major or minor ninth with it, it follows that there are twelve varieties of the chord, as shown in the above table.

397. These formidable looking groups of notes are, as a matter of fact, of the rarest possible occurrence in their complete form. In four-part harmony three at least of their notes must be omitted; and we shall find several forms of the chord, as we proceed, in which only three of its notes are present.

398. It has been already said that in a minor key the major third of the scale can only be used in tonic harmony, and the major sixth only in supertonic harmony (§ 326). Therefore both forms of the tonic major thirteenth, both forms of the dominant major thirteenth, the dominant minor thirteenth when it contains a major ninth, and both forms of the supertonic thirteenth when they contain a major ninth, are unavailable in a minor key.

399. Owing to the large number of notes which it contains, of which seldom more than four are used at once, the chord of the thirteenth differs widely from the chords hitherto spoken of; for it appears in so many forms that it is impossible to treat it in the same manner in which we have treated the chords of the seventh, ninth, and eleventh. When we come to examine the various examples to be given, it will be seen that the notes selected largely depend upon the general principle given in § 334. Thus, if the thirteenth is resolved on the fifth, the fifth will be absent from the chord; similarly the third and eleventh are hardly ever used together, and in many cases all the lower part of the chord is wanting.

400. An important difference between the thirteenth and the other higher notes of a fundamental chord is, that while the seventh, major and minor ninth, and eleventh are all dissonant with their generators, the intervals of the major and minor thirteenth (being the octaves of the major and minor sixth) are themselves consonant to their generators, though in chords of the thirteenth dissonant intervals are usually found between some of the notes.

401. All the notes of this chord, up to and including the eleventh, are bound by the rules for their treatment given in previous chapters; it being always remembered that account has only to be taken of such notes as are actually present in the chord (§ 366). It will only be needful now to give the rules regulating the treatment of the thirteenth itself.

402. Like the chords of the ninth and eleventh, the chord of the thirteenth may resolve either upon its own generator, or on one of the other generators in the key. As a matter of actual practice, however, the chords of the tonic and supertonic thirteenth (which are far less frequently met with than those of the dominant) seldom resolve on their own generator.

403. If the chords shown in § 396 are examined, it will be seen that the minor ninth is a perfect fifth below the minor thirteenth, and the major ninth is a perfect fifth below the major thirteenth. When therefore these notes are both found in the chord, care must be taken in the resolution to avoid possible consecutive fifths.

404. When a chord of the thirteenth resolves on its own generator, it usually descends one degree to the fifth; but it may occasionally rise to the seventh, or even leap to the third of its own chord. It is mostly also resolved sooner than the lower notes of its chord, as we have already seen with the ninth (§ 332) and eleventh (§ 377).

405. If a chord of the thirteenth is resolved upon one of the other generators in the key, the thirteenth may either remain to be a note of the next chord, or it may fall a second or a third. A minor thirteenth may also (like a minor ninth) be resolved by rising a chromatic semitone; and in this case it is very often written as an augmented fifth from its generator, just as the minor ninth under the same conditions is written as an augmented octave (§ 341).

406. When it is said that there are about 180 *possible* combinations of four notes in the various chords of the thirteenth, to say nothing of the combinations of three and five notes, and that each combination has at least two or three possible resolutions, it is evident that we cannot give a few simple rules for the treatment of these chords, as with the chords discussed in previous chapters. In truth, however, the matter is far less complex than would appear from the above remark; for many of the combinations

which are possible are, owing to their harshness, seldom or never employed. The real difficulty with these chords for beginners arises from the fact that they are to be met with in such widely different forms that it is impossible to give any general principle for their figuring, either in their root position, or in any of their inversions. It must never be forgotten that figures alone are not sufficient to indicate the true nature of a chord, but only serve to show the distance of the upper notes from whichever note of the chord may happen to be in the bass.

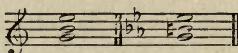
407. As a complete chord of the thirteenth contains six notes besides its generator, it can of course have six inversions. Of these the fifth, having the eleventh in the bass, is rare; all the others are more or less common. We shall give examples of each inversion as we proceed.

408. In discussing the chords of the tonic and supertonic eleventh, the derivation of these chords was proved by a process of what may be called "destructive criticism." For example in §§ 391, 393, 394, it was proved that the chords analysed were only capable of derivation from one of the three generators in the key. A similar method of reasoning will often assist the student to determine the nature of a chord of the thirteenth; but he must in the first place be sure of the key in which the music is, and then see whether any of the notes of the chord are incorrectly written according to the chromatic scale of that key. If so, he must substitute for them their true enharmonic equivalents before proceeding to reason from them. The notes which can be incorrectly written are the sevenths, the minor ninths, and minor thirteenths. We shall follow this method of analysis in the chords now to be examined; and if the general principle is grasped, the student will soon gain the needful experience for making similar analyses for himself.

409. We shall now give examples of various forms of the chord of the thirteenth, classifying them according to the notes which they contain, dealing chiefly with those most commonly used, but including also some of the rarer combinations which possess special features of interest.

CHORDS OF THE THIRTEENTH INCLUDING THE GENERATOR.

410. I. *Generator, third, and thirteenth.* This is the simplest form of the chord, and is rarely found except on the dominant. In its root position it is identical with the first inversion of the triad on the mediant.



It will obviously have a major thirteenth in the major key, and a minor thirteenth in the minor key, which latter can also be used

as a chromatic chord in the major key, though the major thirteenth cannot be used in the minor key.

411. The following examples show this form of the chord both in major and minor keys.

(*a*) Schumann. "Waldscenen," Op. 82, No. 6.

(*b*) Dvořák. "Stabat Mater."

(*c*) Verdi. "Requiem."

At (*a*) is shown the dominant *major* thirteenth with its generator and third, resolving on the root position of the tonic chord. The B flat is of course the real bass note of the last chord. Here the thirteenth leaps a third to the next harmony note, the first semiquaver, C, being an accented passing note (§ 260). Example (*b*) shows the dominant *minor* thirteenth, leaping to the generator (C) of the following chord. In both these passages the chord is resolved on a different generator. At (*c*) it is resolved on its own generator, the thirteenth falling to the fifth, while the octave of the generator falls to the seventh.

412. Our next illustration is somewhat different.

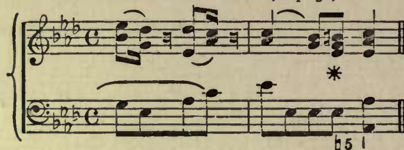
Gounod. "Mors et Vita."

Here we see the sixth inversion of the dominant major thirteenth. As all the notes present are consonant with one another, it is

allowed to double the thirteenth (§ 366). Here one of the thirteenths moves down by step to the fifth of the chord, while the other remains. We then have the second inversion of the chord, with the generator, third, fifth, and thirteenth, which is in its turn resolved on the root position of the tonic chord.

413. The chord of the minor thirteenth is often used as a chromatic chord in the major key, when it mostly resolves on the tonic chord, the thirteenth rising a chromatic semitone to the third of the tonic. In this case the note is mostly written as an augmented fifth (§ 405).

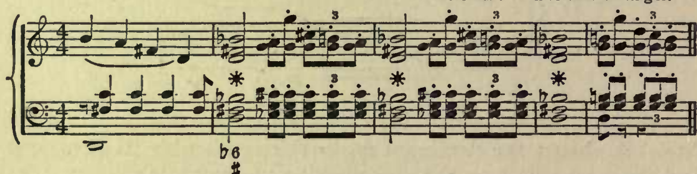
BEETHOVEN. Sonata, Op. 30, No. 2.



The key of this extract is clearly A♭; but the note B♮ does not belong to that key; it must therefore be in reality C♭, the minor thirteenth of the dominant.

414. In the following interesting passage

WAGNER. "Die Meistersinger."

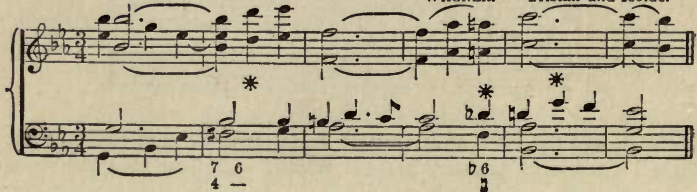


we see a new resolution of the chord. The context shows the key of the extract to be G major. The chord * is therefore the chromatic dominant minor thirteenth; on its first and second appearances it is resolved on a chord of the augmented sixth, which will be explained in the next chapter; but the third time it is resolved on the second inversion of the tonic chord.

415. The example just quoted illustrates what was said in § 292 as to the employment of the augmented triad on the mediant of the minor key as a chromatic chord in a major key.
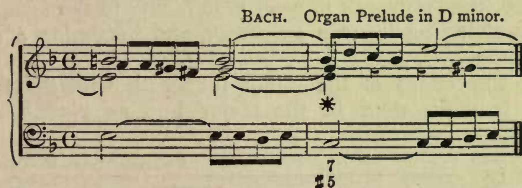
416. Our next illustration shows three different forms of the chord of the thirteenth.

WAGNER. "Tristan und Isolde."
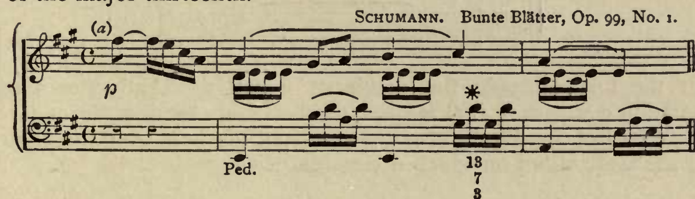


As the passage is clearly in E♭, the F♯ of the second bar must be G♭, and the chord on the second crotchet is the sixth inversion of the dominant minor thirteenth (the generator and third being above the thirteenth) the chord resolving on the first inversion of the tonic. The chord in the third bar looks at first sight like a modulation into C minor; but as there is nothing in what follows to confirm this view, while the whole mental effect of the passage is that of E♭, it is clear that the chord is the first inversion of the supertonic chord, as in the next bar, and that B♮ and D are "changing notes" (§ 253). The chord at the end of the fourth bar can only be a supertonic chord, because the augmented fourth of the key (A♮) can be derived from no other generator; it is therefore the root position of the rather rare supertonic minor thirteenth, resolved on a dominant ninth, the thirteenth rising a chromatic semitone. At the second crotchet of the fifth bar is the root position of the dominant major thirteenth, with a seventh and major ninth.

417. II. *Generator, third, fifth, and thirteenth.* This form of the chord is much rarer than that last given. We have seen one instance in § 412. It is, however, mostly to be found with a *minor* thirteenth, and in the last inversion. A very fine example of this form will be seen at (*a*) in § 303, in the first bar. We give a somewhat different illustration.



418. III. *Generator, third, seventh, and thirteenth.* This is one of the commonest, as well as one of the most useful forms of this chord. It is found in both major and minor keys, and it must be remembered that *the thirteenth should always be above the seventh*, because of the harshness of the dissonance of the second which it will make if below that note. The chord of the major thirteenth in this form usually, though by no means invariably, resolves on its own generator; the minor thirteenth quite as often resolves on a different generator.

419. The following passages show the treatment of this form of the major thirteenth.



BEETHOVEN. Sonata, Op. 10, No. 1.

(*b*)

SPOHR. Sonata, Op. 125.

(*c*)

At (*a*) E is the real bass throughout the bar; we have therefore the root position of the chord resolved on the root position of the tonic chord. In § 342 at the second bar of (*d*) will be seen the same position of the chord resolved on its own generator. Our next examples (*b*) and (*c*) show the first and third inversions of this chord, the thirteenth in each case falling to the fifth, and the chord resolving on its own generator, and becoming a chord of the seventh.

420. The chord of the minor thirteenth with the third and seventh is often used in the major key, as in the following passages :—

CHOPIN. Valse, Op. 34, No. 2.

(*a*)

SPOHR. "Jessonda."

(*b*)

In the first example the dominant minor thirteenth (for the notation compare § 413) resolves on the tonic chord, while at (*b*) the chord of the dominant minor thirteenth is held over the bass of the tonic chord on which it resolves.

421. Our next example shows the same chord used in a minor key.

Schumann. Faschingsschwank aus Wien.

&c.

The key of this extract is F minor; the thirteenth at ✶ leaps to the third of the same chord, instead of (as usual) to the root of the tonic chord when the harmony changes. In the continuation of the passage here given will be found the third inversions both of the major and minor thirteenth, the thirteenth in each case leaping to the third of its own generator.
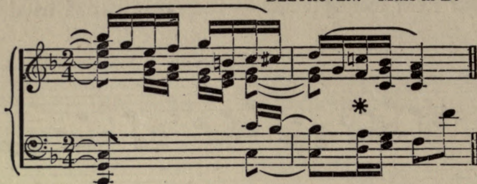
422. It has been already remarked that chords of the thirteenth are much more common on the dominant than on either the tonic or the supertonic. We subjoin a very good example of a tonic minor thirteenth.

Schumann. "Wanderlust," Op. 35, No. 3.

This chord resolves on the chord of E♭; for it is clear that the $\begin{matrix}A\\F\end{matrix}$ at the fifth quaver of the bar are accented auxiliary notes. With this resolution, the chord of the minor thirteenth on B♭ would mostly be a dominant chord in E flat; but that it is not so in the present case is shown by the fact that the auxiliary note of G is A♮, not A♭, and an auxiliary note *above* a harmony note is always in the diatonic scale of the key in which the music is (§ 248). The passage is therefore in B♭, and the chord ✶ is a tonic minor thirteenth.

423. IV. *Generator, ninth, eleventh, and thirteenth.* This, though not one of the most common forms, is important enough to deserve a word of mention.

BEETHOVEN. Mass in D.



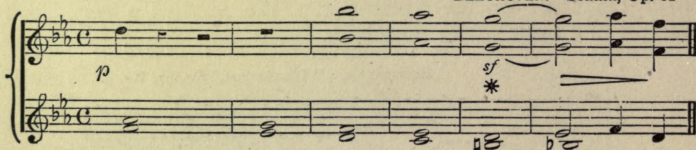
At * is the fourth inversion of the dominant major thirteenth, resolving on its own generator. The major ninth in the bass rises to the third, while the generator falls to the seventh, the eleventh rises to the fifth, and the thirteenth falls to the fifth.

CHORDS OF THE THIRTEENTH WITHOUT THE GENERATOR.

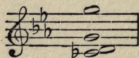
424. Those forms of the chord of the thirteenth in which the generator is absent are frequently more difficult to recognise and identify than those in which it is present. The explanation of the examples now to be given will, it is hoped, assist the student in this matter.

425. V. *Third, minor ninth, and thirteenth.* This tolerably common form is mostly found, if the thirteenth is major, with a disguised notation, the minor ninth being written as an augmented octave of the generator. In this shape it looks like a major triad on the mediant.

BEETHOVEN. Sonata, Op. 81

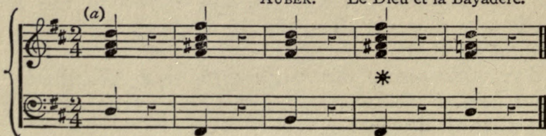


In this passage the resolution of the chord * shows that it is not what at first sight it would appear to be—the first inversion of the dominant triad of C minor, for it resolves on a chord which cannot be in C minor, but which (like the chords preceding) is distinctly in the key of E♭. The chord * is therefore chromatic in E♭, and its real notation is



426. The last inversion of this chord is sometimes found in cadences, written as a major chord on the mediant.

AUBER. "Le Dieu et la Bayadère."



Liszt. "Die Ideale."

(*b*)

ff

&c.

In the second and third bars of (*a*) there is clearly a temporary modulation to B minor; but the last chord (which is the close of the overture—the key of the whole being D major) is evidently not in B minor at all. No one chord can ever establish a key (§ 229); therefore in this passage the chord * must be taken as the dominant of B minor, and quitted (with the enharmonic change of A♯ to B♭) as the last inversion of a dominant major thirteenth in D with a minor ninth and third. The same reasoning applies to example (*b*); but here no previous modulation into the relative minor has been established; the chord in the first bar is the tonic of F, and is followed by the dominant major thirteenth written as a mediant triad. Repetitions of the chord of F conclude the movement.

427. Though the form of the chord now under notice is most common as a dominant, it is also found derived from other generators, as in the following beautiful examples.

(*a*) Schubert. Sonata in A minor, Op. 42.

fz *p*

Dvořák. "Spectre's Bride."

(*b*)

The chord * at (*a*) suggests a modulation to E minor; but its resolution on the dominant seventh of C shows that the chord itself belongs to that key. D♯ not being a note in the key of C must be in reality E♭; while F♯ can only be derived from D as a

generator; and the chord is composed of the same intervals as the two shown in §426, but derived from the supertonic instead of the dominant. At (*b*) is shown the same chord, but with a minor thirteenth, written in its correct notation, with the third in the bass. The passage is evidently in B flat minor, in which key E♮, A♭, and D♭ are respectively the third, minor thirteenth, and minor ninth of the supertonic. The chord here resolves on a dominant triad, the ninth leaping to the root of the next chord, before descending to its regular note of resolution, the fifth; and the thirteenth rising a chromatic semitone to the third of the dominant.

428. VI. *Third, fifth, ninth, and thirteenth.* Not very common, but striking in its effect, as the following examples show—

WAGNER. "Tristan und Isolde."

(*a*)

(*b*) BEETHOVEN. "Sonata Pathétique," Op. 13.

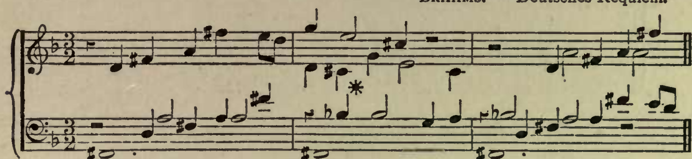
The chord at (*a*) is written in its true notation, and is the fourth inversion of the dominant major thirteenth with a minor ninth, the chord resolving on its own generator. The well-known passage at (*b*) can be in no other key than C minor; the C♯ in the chord * must therefore be D♭, which can only be derived from the tonic. The chord is therefore the second inversion of a tonic minor thirteenth, with third and minor ninth, resolved on the root position of the dominant minor ninth. It would also be possible here to consider G as a dominant pedal; in which case the chord belongs to form V. (§425).

429. VII. *Fifth, seventh, ninth, and thirteenth.* The rare example of this form of the chord given here

BEETHOVEN. Sonata, Op. 22.

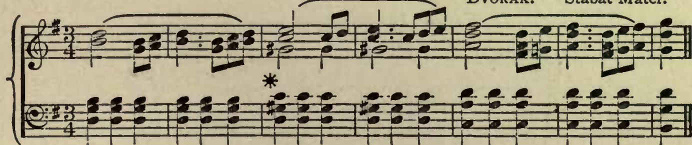
deserves quotation for more than one reason. The B♮ in the bass is really C♭, the minor ninth of the tonic, which therefore determines the derivation of the chord, as it can come from no other generator in the key. The major thirteenth (G) leaps to the third of the chord (§ 404), then returns to the fifth, whence it goes to the eleventh, and the chord ultimately resolves on the dominant triad.

430. VIII. *Third, fifth, seventh, ninth, and thirteenth.*



The key of this passage is D major. The first bar gives the first inversion of the tonic triad. The second bar *sounds like* the root position of the dominant minor ninth of B minor, but its resolution in the third bar on the chord of D shows that the B♭ of the tenor is the minor ninth from A, and that the chord is the last inversion of a dominant major thirteenth. The first chord in the third bar is the first inversion of a tonic minor thirteenth in the form spoken of in § 410, the thirteenth falling to the fifth at the second minim of the bar.

431. IX. *Fifth, ninth, eleventh, and thirteenth.* A very rare form of the chord, of a peculiarly poignant effect.



The first two bars indicate the key of G major, as do the fifth and following bars. The discord in the third and fourth bars consequently belongs to that key. G♯ must therefore be really A♭, which in this key can only be the minor ninth of the tonic; and the chord * is a second inversion of a tonic major thirteenth, resolved on the third inversion of the dominant seventh. The minor ninth (as usual when it is written as an augmented octave) rises a chromatic semitone, and the eleventh and thirteenth each rises one degree. The same chord, similarly resolved, may be seen in the third bar of Wagner's prelude to "Die Meistersinger."

432. X. *Seventh, ninth, eleventh, and thirteenth.* A very common form of the chord, usually described by theorists as a

chord of the seventh on the subdominant. In this form of the chord the seventh, ninth, and eleventh are all free in their progression, being consonant to one another. The thirteenth makes with the seventh the dissonance of the seventh, and requires to be resolved accordingly. If the chord resolves on its own generator, the seventh usually rises one degree, and the thirteenth falls.

(*a*) HANDEL. "Judas Maccabaeus."

(*b*) BACH. "Vater unser."

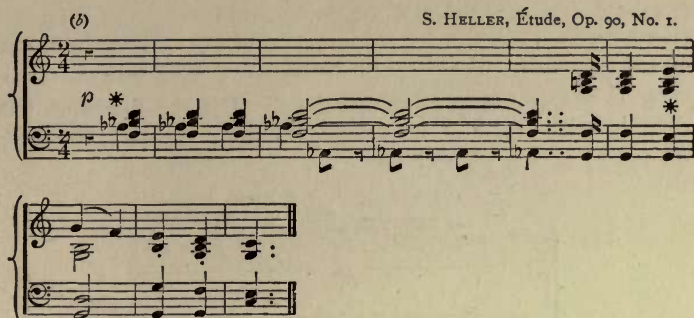
In both these examples the thirteenth, which is minor at (*a*) and major at (*b*), falls to the fifth of the next chord when the seventh rises to the generator.

433. Like the third inversions of the dominant minor ninth (§ 349) and eleventh (§ 384), this form of the dominant minor thirteenth, when the seventh is in the bass, can resolve on the root position of the tonic chord, as in the following cadence—

E. GRIEG. Lyrische Stückchen, Op, 43, No. 6.

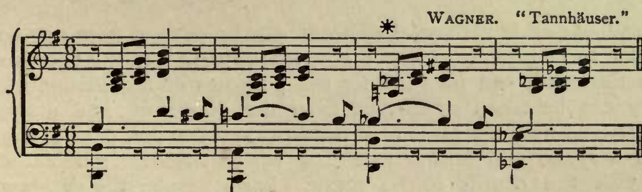
434. The next examples show this form of the tonic thirteenth, which (as already said) seldom resolves on its own generator.

(*a*) SCHUBERT. "Rosamunde."



The passage quoted at (*a*) is in the key of B major; the G♮ shows that the chord ∗ cannot be derived from the supertonic, C♯, and the A♮ shows that it cannot be derived from the dominant, F♯; it must therefore be a tonic chord, and is the third inversion of a minor thirteenth with a major ninth, resolved on the first inversion of a dominant seventh. At (*b*) we have the sixth inversion of the same chord resolved on the root position of the dominant seventh.

435. XI. *Ninth, eleventh, and thirteenth.* This form of the chord is by no means uncommon, but, as none of the notes are dissonant to one another when the ninth and thirteenth are both minor, or both major, it is usually treated as a concord. The minor ninth, eleventh, and minor thirteenth of the dominant chord give the triad on the submediant of the minor key (§ 177), and the same notes of the tonic chord give the chromatic chord on the minor second of the scale (§ 274).* An example of the same combination of the supertonic harmonies in the fifth inversion resolving on the dominant is worth quoting.



436. The combination of the generator, eleventh, and thirteenth (either major or minor) is never used, because these forms would simply give ordinary second inversions of concords.

* The major ninth, eleventh, and major thirteenth, being all secondary harmonics (§66), the senotes of the dominant harmony are the fifth, seventh, and major ninth of the supertonic, already given as the derivation of the chord of the submediant in the major key (§75).

On the dominant we should get the second inversion of the tonic chord, on the tonic the second inversion of the subdominant, and on the supertonic the second inversion of the dominant.

437. It was said in § 397 that the chord of the thirteenth was scarcely ever found in its complete form. As exceptional instances we give two examples.

J. S. BACH. Partita 6.

(*a*)

BEETHOVEN. 9th Symphony.

(*b*)

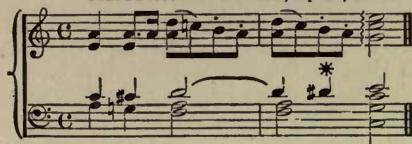
At (*a*) the chord ✱ is the fifth inversion of a dominant minor thirteenth in E minor, with all the notes present except the ninth. At (*b*) is the last inversion of the dominant minor thirteenth in D minor, every note of the chord being present. We very rarely find the dissonant notes together with the notes of their resolution, as here; and it is only right to add that both these combinations may also be explained as tonic chords with the notes of the dominant harmony sounded over them as auxiliary notes. (See Chapter XI.)

438. As all fundamental discords can be derived from any one of the three generators in the key, it is evident that the chords of the thirteenth can be used for the purposes of modulation; for they can be taken as derived from the dominant, and quitted as derived from the tonic or supertonic, and *vice versa*. But their use may be still further extended by enharmonic modulation, as with the chords of the ninth. For example, the dominant minor thirteenth in the key of C, with only generator, third, and thirteenth present may, by changing E♭ to D♯, become the last inversion of a similar chord derived from B ; or if instead of this change we substitute C♭ for B♮ the chord will become a first inversion of a minor thirteenth on E♭. In these cases the chord can be quitted in any of the keys

in which the new generator is either tonic, supertonic or dominant.

439. We have already met with one instance of an enharmonic modulation by means of this chord at example (*a*) of § 426; we now add a few curiosities of a similar kind, which will repay careful study.

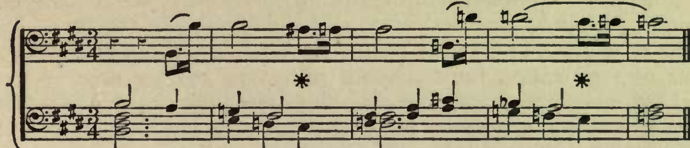
Mendelssohn. Fantasia, Op. 16, No. 1.



This passage begins in A minor: the chord ∗ is the augmented sixth (see next chapter) in that key; but it is resolved in the key of C; the last chord but one must therefore be in the key of C, since in making a modulation there must always be a connecting link. The D♯ of the chord ∗ is treated as an E♭, and the chord itself thus becomes the form X. of the thirteenth (§ 432), the seventh in the bass leaping to the generator of the tonic chord, as in the passage quoted in § 433. It will be observed that here the general rule as to writing the chord in which an enharmonic change is made in the notation of the new key (§ 360), is not observed.

440. The two passages from Wagner next to be quoted are even more curious—

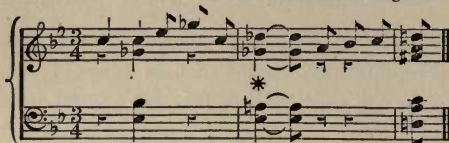
Wagner. "Tannhäuser."



In this well-known progression from the overture to "Tannhäuser," the first bars are clearly in E minor. The first chord of the second bar is the tonic chord of that key; it is followed by the chord of the sixth on the minor seventh of the scale (§ 190), which descends a semitone to the second inversion of the chromatic chord on the supertonic. To effect the modulation into D, the A♯ is enharmonically changed to B♭, and we get form V. (§ 425) of the dominant thirteenth in D resolved on the tonic chord of that key. The modulation two bars later is precisely similar, the C♯ being quitted as a D♭.

441. In the passage just analysed the enharmonic change made the chord into a chord of the thirteenth; in that now to be given the process is reversed, a chord of the thirteenth being changed into something different.

WAGNER. "Die Meistersinger."



At the first bar of this passage the chord is the third inversion of the dominant eleventh (the "chord of the added sixth") in B♭. At * the fifth rises to the minor thirteenth of the same chord. As it resolves in the next bar on the dominant seventh of G, it is clear that there must be here a double enharmonic change; G♭ and D♭ being changed into F♯ and C♯, and the chord being quitted as an unusual form of the augmented sixth (§ 476).

442. To deal exhaustively with a chord so full of varied possibilities as the thirteenth will be seen to be, would require not a chapter but a small volume. It is hoped that the explanations that have been given will assist the student to understand the nature of the chord, and to analyse similar passages for himself. We shall conclude, as in previous chapters, with a general summary.

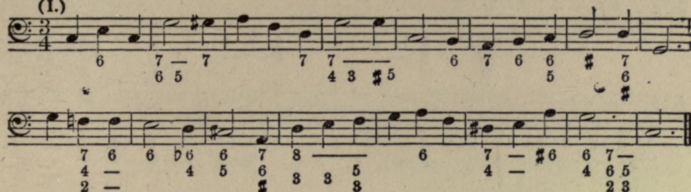
443. I. RESOLUTION. Like the chords of the ninth and eleventh, a chord of the thirteenth can either resolve on its own generator or on one of the other generators in the key. The chords of the tonic and supertonic thirteenths, however, are seldom resolved on their own generators.

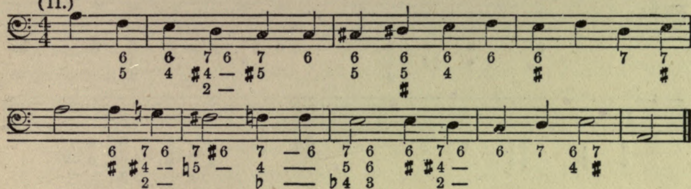
444. II. PROGRESSION OF THE NOTES OF THE CHORD. All the notes present in the chord, up to and including the eleventh, follow the rules given in previous chapters. When the chord resolves on its own generator, the thirteenth moves to another note of the chord, mostly to the fifth or seventh. When the chord is resolved on a different generator, the thirteenth remains, falls a second or a third, or rises a chromatic semitone.

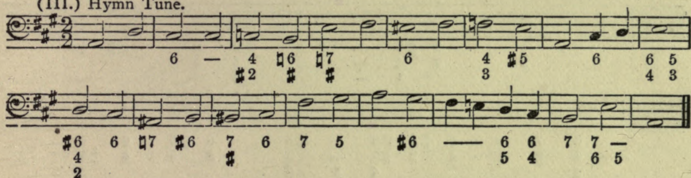
445. III. FORMS OF THE CHORD. Of the many possible forms of this chord, those most frequently met with are (1) generator, third, and thirteenth, (2) generator, third, seventh, and thirteenth, (3) seventh, ninth, eleventh, and thirteenth, and (4) ninth, eleventh, and thirteenth. This last combination is a consonant triad, and is mostly treated as such. In all chords of the thirteenth any note may be treated as a consonance, provided that no *lower* note of the complete chord with which it would form a dissonance be present.

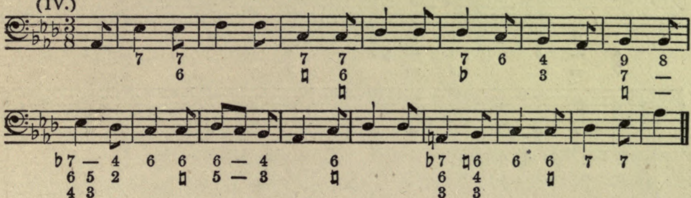
446. As the third next above the thirteenth is the double octave of the generator, it is evident that the series of fundamental chords which we have been building up by thirds must end here. The chords to be treated in the next chapter are formed, as will be seen, in a different manner. All the combinations hitherto treated of are found in the three fundamental chords of the key shown in § 71.

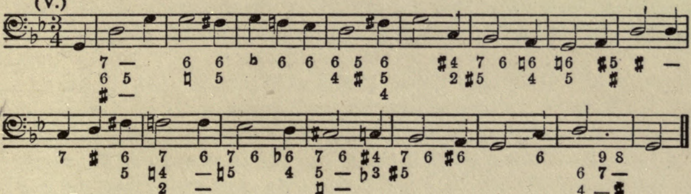
Exercises to Chapter XVI.

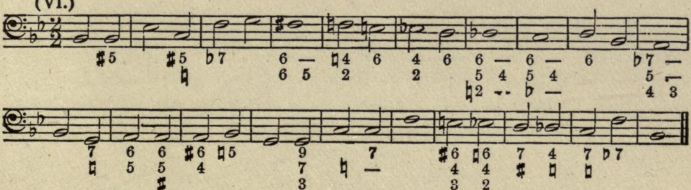












(VII.)

(VIII.) Hymn Tune.

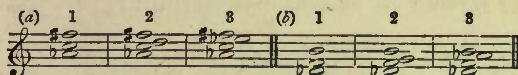
(IX.) Hymn Tune.

CHAPTER XVII.

THE CHORD OF THE AUGMENTED SIXTH.

447. In addition to the series of fundamental chords already explained, there is one chord of great importance and of frequent use still to be noticed, which is formed in a different manner from any of the chords yet shown, and which contains an interval which we have not yet met with. This is the *Chord of the Augmented Sixth.*

448. If we take the second inversion of a chord of the seventh, or of a chord of the minor ninth on either the dominant or supertonic, and lower the bass note a chromatic semitone, we shall obtain a new combination.



At (*a*) 1, 2, are seen the second inversions of the chord of the supertonic seventh, both with and without the generator, and at (*a*) 3, the same position of the minor ninth of that chord, but *in each case with the bass note lowered a semitone.* At (*b*) 1, 2, 3, are corresponding positions of the dominant chord similarly altered. The chords of the seventh and ninth on the tonic cannot be treated in the same way, because the diminished fifth of the tonic is not a note in the key.

449. It will be obvious that the alteration of the bass notes changes the nature of the chords. The three chords at (*a*) are now no longer supertonic chords; because A♭ cannot be derived from D as a generator. Neither, for the same reason, are the chords at (*b*) dominant chords. We must seek another explanation.

450. If the student refers to the derivation of the notes of the chromatic scale given in § 73, he will see that A♭ is the minor ninth of the dominant, and that D♭ is the minor ninth of the tonic. The three chords at (*a*) are therefore dominant chords of a kind we have not yet met with, and the chords at (*b*) are similarly tonic chords.

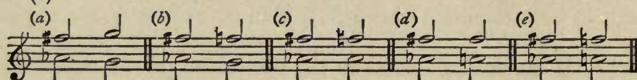
451. As only the lower note of each chord has been changed, it would seem at first sight as if the chords were derived from two generators. Thus all the upper notes of the chords at (*a*) are still part of the supertonic chord, and all the upper notes of the

chords at (*b*) are still part of the dominant chord. As a matter of fact, many theorists speak of these chords as "double-root chords." But it is important to remember that the supertonic is itself derived from the dominant, and the dominant is derived from the tonic; therefore all the harmonics of the supertonic are derived in the second degree of descent (*i.e.*, as secondary harmonics, see §41) from the dominant, and all the notes of the dominant chord are secondary harmonics of the tonic. It will be convenient to speak of the notes of this chord as derived from the upper or lower generator; and it must not be forgotten that the upper generator is itself derived from the lower one.

452. It was seen in §66 that in all fundamental chords all the notes at a greater distance from the generator than a minor ninth were secondary harmonics; the chords now under notice are similarly compounded; the only *primary* harmonic generally used being the bass note (the minor ninth), and all the other notes of the chord being secondary harmonics. The important distinction between this chord and all others is that in this chord alone the *major* seventh of the generator (the 15th harmonic) is used. Of course it absolutely excludes the *minor* seventh.

453. From the nature of the interval between the minor ninth and major seventh of the generator, this chord, in whatever form it may appear, is called the Chord of the Augmented Sixth. It is always chromatic, the major seventh of the dominant, and the minor ninth of the tonic being chromatic both in major and minor keys. The chord is by no means of modern introduction; it is to be found in the works of composers of the 17th century, such as Purcell, Pelham Humphreys, and Carissimi.*

454. The general tendency of the notes of an augmented interval being to diverge (§199), the most frequent resolutions of the augmented sixth are those in which the two notes move each a semitone in contrary motion, as at (*a*) below. More rarely each descends a semitone, as at (*b*); or one remains stationary while the other moves a semitone, as at (*c*) (*d*). It is even possible, though rare, for both to approach each other by step of a semitone, as at (*e*).



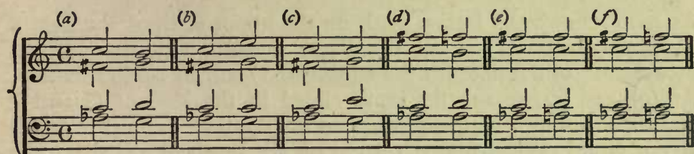
455. The only two notes of a key on which the interval of the augmented sixth can be found are the minor second and minor sixth of the scale. It has just been shown that the chord on the minor second of the scale is derived from the tonic, and that on the minor sixth from the dominant. The latter chord is much the

* Some interesting examples of the chord are to be seen in the specimens from these composers given in Hullah's "Transition Period of Musical History," and "History of Modern Music." Want of space prevents their quotation here.

more frequently used; we have seen in earlier chapters that tonic discords are of far rarer occurrence than dominant, and the present is no exception.

456. The chord of the augmented sixth is most commonly found in one of the three forms shown in § 448. We shall speak of these first, commencing with the simplest.
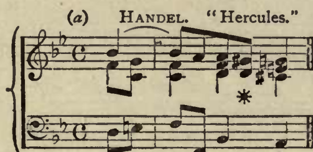
457. I.—*Chord of the Augmented Sixth with the Third only* . This form of the chord consists of the minor ninth of the lower, and third and seventh of the upper generator, and is generally called the "Italian Sixth." As it contains only three notes, one must be doubled in four-part harmony. As with other discords, neither of the dissonant notes of the augmented sixth can be doubled; the third from the bass note therefore appears in two parts. The chord is figured like an ordinary first inversion of a triad; but the sixth being a chromatic note in the dominant chord, will require to be indicated accordingly—♯6 or ♮6. We now give this chord with its principal resolutions, putting the commonest progressions first.

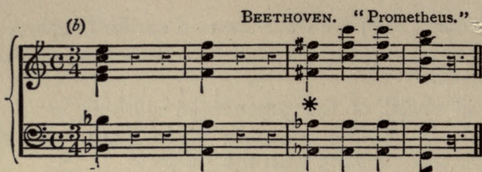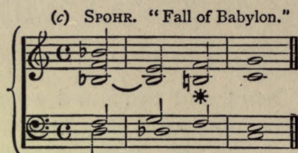


458. At (*a*) the chord is resolved on the root position of the dominant chord, and at (*b*) (*c*) on the second inversion of the tonic; these are the most usual resolutions. At (*d*) the bass remains, and the chord resolves on a dominant discord; at (*e*) the sixth remains as the third of a supertonic discord. The resolution at (*f*) is very rare.

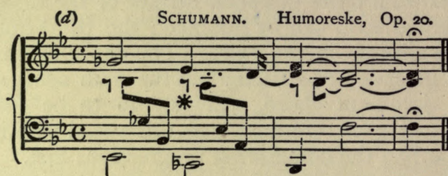
459. This form of the chord is susceptible of two inversions . Of these the first is infrequent, and the latter extremely rare.

460. We now give a few examples of the use of this form of the chord.



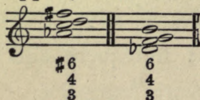






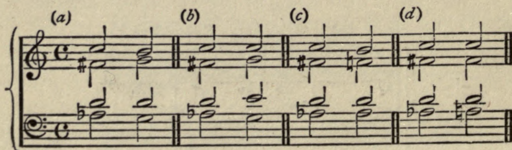
At (*a*) is shown the Italian sixth on the minor sixth of the key of D minor, resolved on the dominant seventh, with the unusual progression of the notes of the augmented sixth by similar motion. At (*b*) and (*c*) we see the same chord in the keys of C and F major, with their usual resolution on the dominant chord. At (*d*) is the chord on the minor second of B♭, resolved on the tonic chord. The D at the end of the first bar is, of course, an "anticipation." The less usual resolutions given at (*d*) (*e*) (*f*) of § 457 are not often found with this form of the chord.

461. II.—*Chord of the Augmented Sixth with the Third and Fourth.* This form of the chord consists of the minor ninth of the lower generator, and the seventh, octave, and third of the upper; and it is commonly known as the "French Sixth."



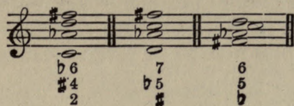
It is figured like the second inversion of a chord of the seventh; but the chromatic note must of course be indicated when not in the bass.

462. The principal resolutions of this chord are the following:—



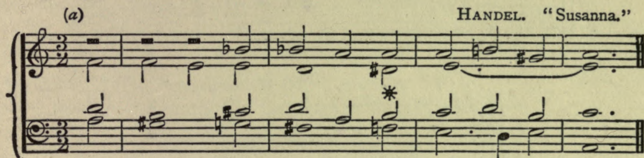
After the explanations already given the student will have no difficulty in analysing these progressions for himself.
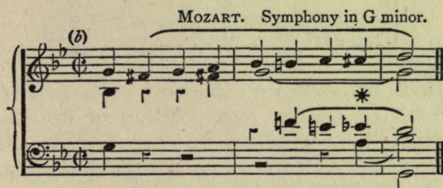
463. There are three inversions of this chord :—

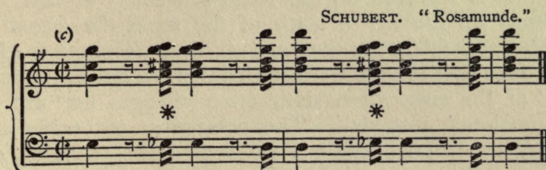


The last inversion is so harsh in effect that, though possible, it is seldom used. It may be said that in general it is better not to invert the interval of the augmented sixth, thereby making it a diminished third, excepting in the third form of the chord next to be considered. It is needless to show all the resolutions of these inversions, as the progression of the dissonant notes is governed by the rules with which the student may be reasonably presumed to be by this time quite familiar.

464. The following examples of this form of the chord will sufficiently illustrate its use :—



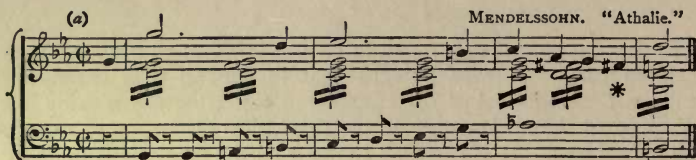


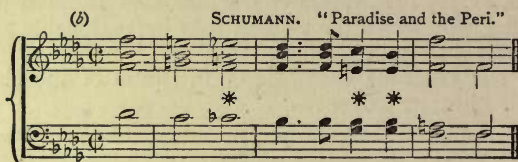


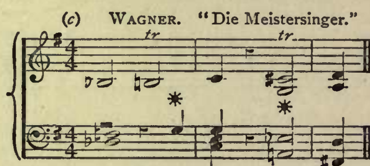
In each of these examples the French sixth resolves on a position of the tonic chord. This is a very frequent, though (as we shall see directly) by no means an invariable progression for this form of the augmented sixth. At (*a*) the root position of the chord on the minor sixth in A minor is resolved on the second inversion of the tonic. At (*b*) is the second inversion of the same chord in the key of G minor, resolved on the first inversion of the tonic chord. The G in the bass at the end of the passage is the entry

of a new voice, and does not affect the progression of the discord. At (*c*) is the root position of the same chord in the key of G major, resolved like example (*a*) on the second inversion of the tonic chord. Note that in the major key both the notes forming the augmented sixth in this chord are chromatic.

465. The examples now to be given illustrate other resolutions.



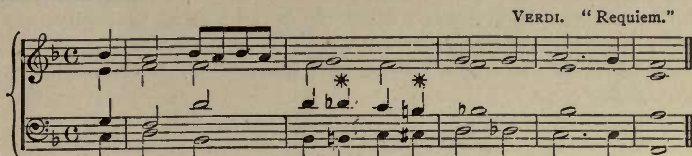




Our first extract (*a*) shows an irregular resolution of the chord. Instead of resolving on the root position of the dominant, the augmented sixth here resolves on the first inversion of the dominant seventh. At (*b*) the chord on the minor second of B flat minor is resolved on the tonic chord. We then see the same chord on the minor sixth of the scale, the octave of the upper generator falling to the seventh, thus changing the form of the chord to the Italian sixth, which is resolved in the last bar. A chord of the augmented sixth often changes its form in this way before being resolved. The passage at (*c*) begins in F, in which key the French sixth is resolved, quite regularly, on the dominant. In the second bar there is a modulation to G, the chord of C being quitted as the subdominant of that key. The chord at the end of the second bar is the second inversion of the augmented sixth on the minor sixth of the key resolved irregularly on the first inversion of the dominant.

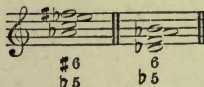
466. It is important to notice that as this particular chord is not made, like all which have been previously studied, by placing thirds one above another, the second inversion of a French sixth has the *fourth* in the bass instead of the fifth.

467. The last example to be given of this chord offers some new features.

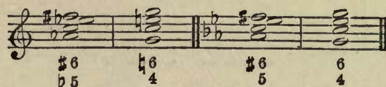


Here are shown two positions of the chord. We find first the rare last inversion, with a diminished third above the bass note. The last chord of this bar is clearly an augmented sixth, for C♯ is not in the key; the D♭ is incorrectly written because of its resolving upwards, like the minor ninths and thirteenths which have been already met with. The passage is further interesting as furnishing an example of the rare progression of the notes of the augmented sixth shown at § 454 (*e*), where they approach each other by step of a semitone. The chord in the passage now under notice resolves on the fourth inversion of a dominant eleventh.

468. III. *Chord of the Augmented Sixth with the Third and Fifth.* This form of the chord consists of the minor ninth of the lower generator, and the seventh, minor ninth, and third of the upper; and it is generally called the "German Sixth."*



The resolutions of this chord are the same as those of the other two forms, excepting that when the bass falls a semitone it usually resolves on a second inversion.

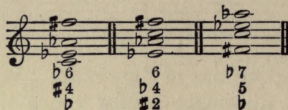


Here the fifth of the chord (the minor ninth of the upper generator) rises a chromatic semitone in the major key, and remains

* As students are very apt to confuse the names of these three forms of the augmented sixth, the following artificial "aid to memory" may be found useful :—The three forms correspond to the character of the music of the three countries—Italian music is the simplest; and the "Italian sixth" is the simplest form of the chord. French music is the most piquant, and so is the "French sixth," with the discord between the upper generator, and its seventh. Lastly, German music is the richest and fullest in character; and the "German sixth" is richer in its effect than either of the others.

stationary in the minor. Evidently, if the chord is resolved direct on the dominant, the fifth will fall a semitone, making consecutive fifths with the bass. Such fifths (as will be seen presently) are not always objectionable.

469. Like the French sixth, this form of the chord has three inversions.



The last inversion, containing the interval of a diminished third from the bass, is much more frequently used than the last inversion of the French sixth, being much less harsh in this form of the chord.

470. The German sixth is more common than either the Italian or French, and it will be needful to give a larger number of illustrations to show its use.

(*a*) HAYDN. "Creation."

MOZART. Quartett in E♭.

(*b*)
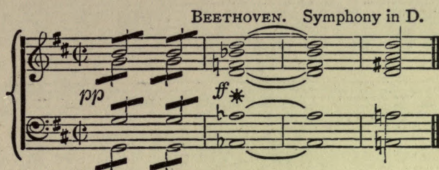
(*c*) BEETHOVEN. Sonata, Op. 57.

sf

At (*a*) is the commonest resolution of the chord—on the second inversion of the tonic, though Haydn has first changed the chord to the Italian sixth. (Compare § 465.) Example (*b*) shows the same resolution, but with a freedom—not to say licence —in the part writing by no means usual with Mozart, and which we do not recommend for the student's imitation. The dotted

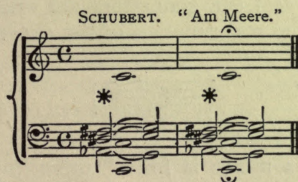
lines show the progression of the separate parts in the score. The next example (*c*) shows the resolution of the chord on dominant harmony—in this case on a dominant eleventh; the two notes of the augmented sixth move in similar motion; F♭, the minor ninth of the upper generator, is written as E♮, and moves in consecutive fifths (§ 468) with the bass.

471. In the following passage the chord * is written as if it were a dominant seventh in E flat.
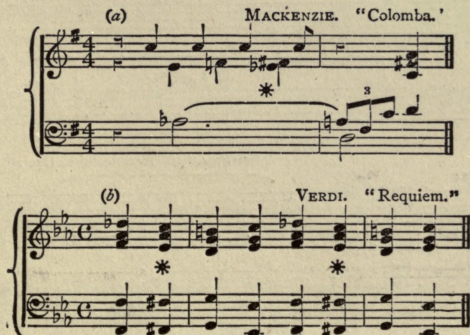


Its resolution shows it to be the last inversion of the German sixth on the minor sixth of the key of D. In this key A♭ is not a note; its true notation is G♯.

472. The commencement of Schubert's fine song "Am Meere" gives an excellent example of the first inversion of this chord, resolved on the root position of the tonic.



473. The passages next to be given show some other resolutions of this chord.

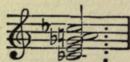


(*c*) BRAHMS. "Schicksalslied."

SULLIVAN. "The Prodigal Son."

(*d*)

The first of these passages gives the chord on the minor second of G resolved on the chord of the dominant seventh, the upper note of the augmented sixth remaining to be the third of the following chord. At (*b*) is the last inversion of the chord (compare § 471), resolved on the dominant chord; and at (*c*) the chord on the minor sixth of the scale (here written as B♮ instead of C♭) is resolved on a supertonic seventh. Example (*d*) is somewhat similar, the augmented sixth being resolved on the supertonic chord; but here it is taken above a dominant pedal, and the minor ninths from *both* the generators are written as augmented octaves (§ 341). The real notation of the chord ✱ is of course



474. Schumann's music is full of interesting examples of this chord. We select a few typical specimens.

(*a*) SCHUMANN. Novellette, Op. 21, No. 7.
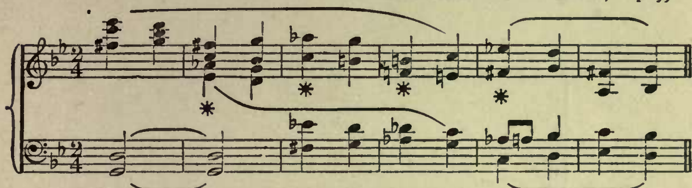
SCHUMANN. Kreisleriana, Op. 16, No. 2.

(*b*)

At (*a*) the chord ✱ is the augmented sixth on the minor second in the key of A. The notation is evidently inaccurate, as B♭ and E♯ cannot possibly belong to the same key. The E♯ is really F♮, and the resolution of the chord is unusual, being on the first inversion of the submediant triad. Example (*b*)—in which, to make the progression clearer, the distribution of the first chords between the two hands has been altered—is another illustration of false notation. C♯ and G♭ cannot belong to the same key. The whole passage is in B♭, and the C♯ in the second bar is really D♭. The chord ✱ is the second inversion of the augmented sixth on G♭ (with a diminished third), resolved on the root position of a supertonic seventh.

475. The following passage
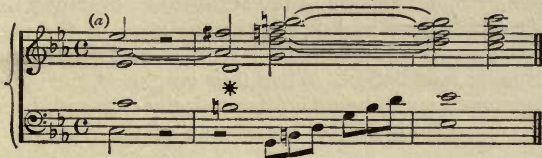
Schumann. "Bunte Blätter," Op. 99.



is probably unique, as containing four chords of the augmented sixth in as many consecutive bars. The first two bars are on a "double pedal" (see Chapter XX.). The first chord of the second bar is the second inversion of the German sixth on the minor second of the key resolved on a *minor* tonic chord. This is a very rare resolution; the augmented sixth on the minor second of the key, when resolved on a tonic chord, mostly resolves on a *major* chord. Another example of its resolution on a minor chord is seen at (*b*) § 465. The third bar of our present illustration shows the last inversion of the German sixth, resolved on the dominant of C minor, as in § 473, at (*b*); the fourth bar gives the second inversion of the same chord on the minor second of C minor, here resolved on a *major* chord; and the fifth bar contains the first inversion of the chord on the minor second of G minor, the minor ninth of the lower generator rising a chromatic semitone, and the chord being thus resolved on the third inversion of a dominant minor ninth.

476. The three forms of the chord of the augmented sixth already explained are by far the most common, but by no means the only ones to be found. We give a few of the rarer forms.

Haydn. "Creation."



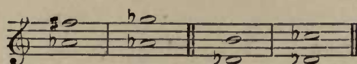
(*b*) WAGNER. "Tristan und Isolde."

(*c*) VERDI. "Requiem."

(*d*) E. PROUT. Overture "Rokeby."

At (*a*) will be seen a chord in which B♮, the third of the lower generator, is substituted for C, the seventh of the upper. The chord is the first inversion of . Another position of the same chord is seen at (*b*). At (*c*) a beautiful effect is obtained by the substitution of the major for the minor ninth of the upper generator. The last example (*d*) shows the chord on the minor second of the key, with the minor ninth of the lower generator, and the octave, third, and minor thirteenth (instead of the seventh) of the upper. It may be said in general terms that any combination of the harmonics of the two generators is possible for this chord, so long as the minor ninth of the lower and the third of the upper generator are present, and that no false relation is induced between the notes employed.

477. Like other fundamental chords, the chord of the augmented sixth can be freely used for the purposes of modulation. As it can be taken in either a major or minor key on either the minor sixth or minor second of the scale, it can evidently be taken in any one of four keys and quitted in any other of the same four without an enharmonic change. But it is also largely available for enharmonic modulation. When thus employed, the upper note of the augmented sixth, being enharmonically changed, becomes a minor seventh, of which the lower note of the interval is the generator.
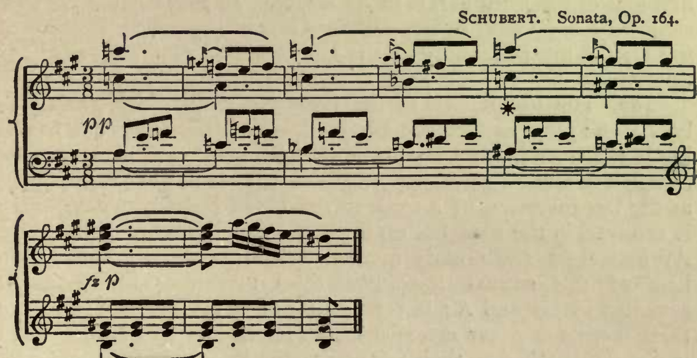


This change evidently converts the chord into a fundamental seventh.

478. A little thought will show the student that it is only the *German* sixth that can be thus converted; for the French sixth contains a note which will not be a part of a chord of the seventh at all; while the Italian sixth will be impossible as a seventh in four-part harmony, owing to the doubling of the third.

479. This enharmonic change of an augmented sixth to a dominant seventh, and *vice versâ*, is mostly used when a modulation is desired to a key a semitone up or down. If, for instance, in C the chord of the augmented sixth on A♭ is taken, and the F♯ changed to G♭, the chord becomes the dominant seventh in D♭, and can be resolved in that key. It might also be quitted as the supertonic seventh of G♭, or the tonic seventh of A♭, but these resolutions, the latter especially, are seldom if ever to be met with. Conversely, if we take the dominant seventh in the key of C, and change the F to E♯, the chord becomes an augmented sixth in B major or minor—possibly, even, in F♯ major or minor. We shall see directly that some other enharmonic changes are possible; but the above are by far the most usual.

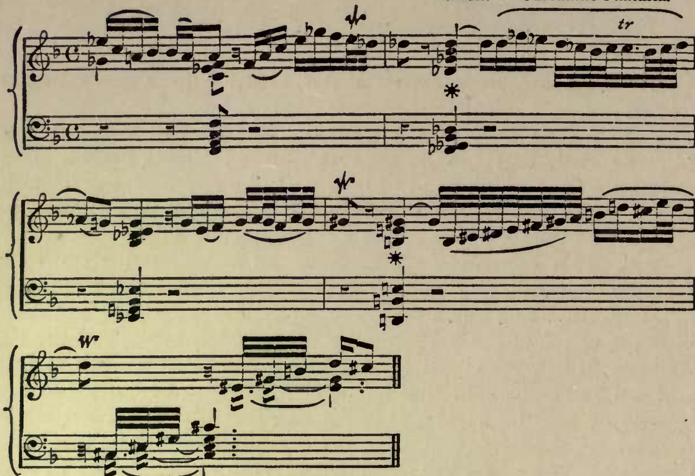
480. We shall conclude this chapter with a few examples of enharmonic modulation by means of this chord. Our first extract

Schubert. Sonata, Op. 164.



illustrates what has been said in the last paragraph. At the third and fourth bars is the chord of the dominant seventh in F major. In the fifth bar B♭ is changed to A♯ and the chord becomes the last inversion of the German sixth in E major, in which key it is resolved at the seventh bar.

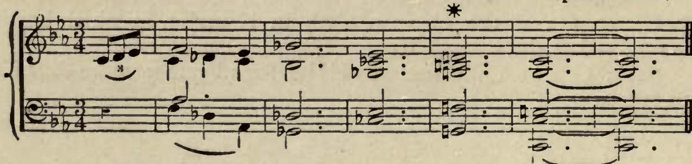
481. Our next illustration will be found rather more difficult to follow.



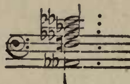
The first bar of this passage is clearly in B♭ minor; as the note F♭ in the bass of the second bar is not in that key, it is evident that there is here an enharmonic modulation, the chord being written in the notation of the new key. The chord in B♭ minor will have E♮, and will be the last inversion of the German sixth. The modulation, as proved by the last half of the second and the first half of the third bar, is to A♭ minor. In this key the chord ✱ cannot be dominant, because of the G♭, nor supertonic because of the D♭; it must therefore be the last inversion of the tonic minor thirteenth.

482. The progression of the harmony in the fourth and fifth bars is the same as that just analysed. The chord ✱ in the fourth bar is taken as the last inversion of a German sixth in A flat (the notation of three notes being enharmonically changed), and quitted as the last inversion of a tonic thirteenth in F sharp minor, which is resolved in the next bar on the dominant harmony of that key. At first sight the chords marked ✱ in the second and fourth bars of this extract look like third inversions of dominant sevenths in C♭ and A; but they cannot be so regarded, because these keys are never established. The chords in question must therefore be taken in their relation to the keys next following.

483. One of the most beautiful and novel harmonic progressions ever written will be seen in our next example.



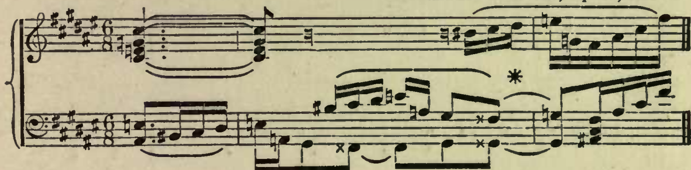
This passage commences in C minor, and passes rapidly to C♭ major, whence by a simple, but most unexpected, enharmonic change, a return is made at once to C♮ major. The chord ∗ is taken as the augmented sixth in C♭, its notation in that key being



If the chords in the third and fourth bars be written in B♮ major (the enharmonic of C♭), the student will follow the progression more easily, as then only one note will need to be changed for the key of C. It will be a useful exercise for him to do this for himself; we shall therefore not do it for him. In this passage we see the converse of the modulation shown in § 480.

484. Our last example is chosen to show the student how to overcome some of the difficulties arising from incorrect notation in the extreme keys, as well as from incomplete, or merely suggested harmonies.

Schumann. Romanze, Op. 28, No. 2.



The first chord, being a chord of the diminished seventh, can be (as we already know, § 360), in *any* key. We look at the next bar to see what key the music goes into, and we find C♯ minor clearly indicated by the A♮, B♯, and F×. The fourth quaver of the bar is an outline chord of the augmented sixth, in its last inversion, with the diminished third, for this interval occurs in no other chord. The G× must be of necessity a false notation for A♮, because of the E♮ in the upper part at the beginning of the last bar; for no chord which contains E♮ as one of its notes can possibly also contain G×. The chord at the end of the bar is therefore the augmented sixth A♮, C♯, F× ; the last note is enharmonically changed to G♮, the change being exceptionally written, and the chord is left as a tonic minor thirteenth in B major, and resolved on the dominant of that key. The enharmonic change is the same as in the passage from Bach given in § 481; and the G× was evidently written by Schumann instead of A♮ because of the note resolving by rise of a semitone—as we have so often seen to be the case with the minor ninths and thirteenths.

485. The student will no doubt find the analyses just given somewhat difficult to follow. Such passages require, but they will

certainly repay, careful study. It must not be supposed that we have given all the possible examples of such modulations. This our space will not allow; we can only give a few representative specimens. Besides this, the resources of art are not yet exhausted; new combinations are constantly being discovered, and it is certain that whenever such combinations are good, they will be capable of a satisfactory theoretical explanation.

Exercises to Chapter XVII.

(I.)

(II.)

(III.) Hymn Tune.

(IV.)

(V.)

(VI.) Hymn Tune.

(VII.)

(*a*)

(*a*)

a See §§ 477—479.

CHAPTER XVIII.

THE SO-CALLED "DIATONIC DISCORDS."

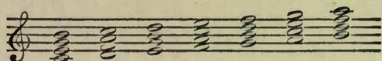
486. The development of harmony has been very gradual, and many of the progressions which have been met with in preceding chapters are of comparatively recent introduction. The earliest modern music consisted of concords only; and discords, when first employed (unless they were passing notes), were always considered to require *Preparation.* By the preparation of a discord is meant the appearance of the dissonant note as a consonance in the preceding chord, and in the same voice in which it is to be heard as a dissonance.

487. But about the beginning of the 17th century Claudio Monteverde ventured to introduce the dominant seventh into his music without preparation. The bold innovation raised an outcry in his day, just as the harmonic experiments of Schumann and Wagner have done in our own times; but it soon began to be realised that the effect was good, and before long, the use of the unprepared dominant seventh became general. It was probably nearly a century later before any one ventured to use any other discord without preparation. Bach, who anticipated nearly all modern harmonic progressions, was one of the first to use other chords of the seventh than that on the dominant in this manner; and at the present time it is allowed to use any *essential* discord—that is, a discord in which the dissonant note is itself an essential part of the chord—without preparation.

488. In order that the explanations now to be given may be clearly understood, it is very important to remind the student of the distinction made in the foot-note to § 58 between the *Root* and the *Generator* of a chord. By the latter term is meant that one of the three notes in a key—tonic, dominant, or supertonic—from which the chord is harmonically derived; by the word "Root" is meant the lowest of the series of thirds which happens at the time to be present in the chord. Sometimes, as for instance in the triad on the dominant, the root and generator are the same; but very often the two notes are different. Thus, in the key of C major, the diatonic triad on the supertonic is derived from the dominant as its fifth, seventh, and major ninth (§ 75); here G is the *generator* of the chord; but D is its *root.*

489. By the term "diatonic discords" are meant all discords which are in accordance with the key-signature, and contain any other intervals from their root than a major third, perfect fifth, and minor seventh, which, as we have already seen, are the characteristic intervals of a fundamental discord. For example, if we add a seventh to the supertonic triad given above, it will be a diatonic discord, for, though it contains a perfect fifth and minor seventh, it does not contain a major third. Similarly, if we add B♮ to the tonic chord of C, we shall have a diatonic discord with a major, instead of a minor seventh. Some theorists call such chords "secondary sevenths," to distinguish them from the dominant sevenths.

490. If we place a seventh, in accordance with the key-signature, above each of the triads of the major key given in § 75, we shall obtain a series of diatonic sevenths.



If the student will examine the fundamental chord of the dominant shown in § 67, he will see that each of the chords of the seventh given above is a part of that fundamental chord:—

The *tonic seventh* is the eleventh, major thirteenth, generator, and third.

The *supertonic seventh* is the fifth, seventh, major ninth, and eleventh.

The *mediant seventh* is the major thirteenth, generator, third, and fifth.

The *subdominant seventh* is the seventh, major ninth, eleventh, and major thirteenth.

The *dominant seventh* is already known. It is only "diatonic" in the sense of containing no note foreign to the key-signature, and is not included among the diatonic discords.

The *submediant seventh* is the major ninth, eleventh, major thirteenth, and generator.

The seventh on the leading note, sometimes called the *leading seventh,* is the first inversion of the dominant major ninth, without the generator.

491. The triads of the minor key (§ 177), can be similarly treated, and the diatonic sevenths thus obtained can equally be derived from the fundamental chord on the dominant with the *minor* ninth and thirteenth. The tonic seventh in the minor key is found in two forms . The form with the minor seventh can only be used when the seventh descends in the

next chord; and in this form it is used to avoid an augmented second, and must be considered as an arbitrary alteration of the major third of the dominant to a minor third, such as has been seen in § 190. As all the other derivations are precisely the same as in the major key, with the substitution of minor for major ninths and thirteenths, it is needless to give the list in full.

492. The old rule for the treatment of diatonic discords was that the seventh must be prepared (§ 486), and that the chord must resolve on another chord the root of which was a fourth above its own. The extracts given in previous chapters will furnish illustrations of this. At § 202 (*b*) the first chord of the second bar is a diatonic seventh; the root is B; the seventh, A, is prepared in the preceding chord, and is resolved on the third of the chord of E—a fourth above B. At (*d*) of § 208, is seen on the third crotchet of the bar the same chord in a minor key. The root of the chord is B♮ (the generator is E); the seventh, A, appears in the tenor of the preceding chord, and the diatonic seventh on the supertonic is resolved on the dominant, the root, as before, rising a fourth. In the example at § 301 the same rule is observed. Here the sixth chord in the extract is a diatonic seventh on the submediant; the seventh is prepared, and the chord is resolved on a supertonic seventh, the root of which is the fourth above A.

493. The following passage—

HANDEL. "Joshua."

shows a sequence (§ 137) of diatonic sevenths in their third inversion, each being resolved (like the third inversion of the dominant seventh) on the first inversion of the chord whose root is a fourth above their own. The first chord marked ∗ is the third inversion of the supertonic (the seventh being prepared in the preceding chord) resolved on the first inversion of the

dominant; then comes the third inversion of the tonic seventh, resolved on the first inversion of the subdominant; and so on to the end of the passage, the last seventh being the third inversion of the dominant seventh, and therefore a fundamental chord.

494. In a progression of this kind, a sequence of sevenths is often met with, as in the example now to be given—

Mozart. Litany in B♭.

Here is a fine sequence of sevenths, commencing at the second bar, the third of each seventh remaining to be the seventh of the next chord, and the seventh of each chord descending a note to be the third of the following. The roots in every instance rise a fourth.

495. Having given examples of the observance of the old rule referred to in § 492, we shall now show cases in which it was disregarded, even by the old masters. In § 313 at (*b*) will be seen a diatonic chord of the seventh on the subdominant. Here the seventh is duly prepared; but instead of being resolved on a chord of the leading note (which would be the fourth above the subdominant), it is resolved on the first inversion of a supertonic minor ninth. Again, in the example at § 361, the first chord of the third bar is a diatonic ninth on the mediant of A minor (in reality, as was there shown, a last inversion of a dominant minor thirteenth), and it is resolved, not, according to the law of diatonic discords, on the submediant, but on the tonic. Again, at § 432, example (*a*) is a subdominant minor seventh, not prepared, and resolved on a dominant chord; while at § 432 (*b*) is a subdominant major seventh, here prepared, but resolved also on a dominant chord, the root of which is a second, and not a fourth above the root of the discord.

496. These examples show that in many cases the strict rule was not observed even by the old masters. Where disregarded it appears to have been that the chords were looked at according to their true derivation, which has been seen to be as part of the dominant harmony. A few more examples may be given.

(*a*) J. S. Bach. "O Ewigkeit, du Donnerwort."

J. S. BACH. "Johannes Passion."

(*b*)

J. S. BACH. "Ich armer Mensch, ich Sündenknecht."

(*c*)

At (*a*) is seen the chord of the mediant seventh, with the seventh prepared, resolving on the submediant seventh. Here the root rises a fourth, according to rule; but the submediant seventh is resolved on the first inversion of the triad on the leading note, the root rising only a second instead of a fourth.* At (*b*) the supertonic seventh is taken without preparation, and resolved on the second inversion of the tonic. The chord * at the end of the first bar of (*c*) is a parallel case to the second at (*a*); but in the third bar of this passage is a mediant seventh with an ornamental resolution, the seventh going to the fifth of the chord (§ 202) before the change of harmony, and the chord itself being resolved on the first inversion of a subdominant triad.

497. These examples, which might be increased to any extent, show that even in the last century the old law as to the preparation and progression of these chords was often disregarded; and it would be absurd to fetter ourselves now by any such rule. Let it therefore be clearly said that *any essential discord can be taken without preparation.* None the less can we deduce from the examples here given some general principles for our guidance in the treatment of these discords.

498. It has been several times said, in speaking of the fundamental discords in preceding chapters, that account has only to be taken of such notes as are actually present in the chords. We adopt the same course in dealing with these diatonic discords, which, as has been seen, are parts of fundamental dominant harmony. For example, in the chords shown in § 490, the upper note of each chord is the seventh above the lowest note, which is in each case the *root;* and the seventh of each chord should fall

* In this explanation the F is considered as a suspension. If, however, the first quaver of the bar be regarded as a supertonic seventh without the fifth, the old rule is still broken, as this chord resolves on the first inversion of a triad on the leading note, the roo falling a third instead of rising a fourth.

one degree. This rule, like all other rules given in this volume, is founded upon the practice of the best masters, and is illustrated in all the examples we have quoted. It is also generally advisable if the seventh of these chords has appeared in the preceding chord, to *prepare* it,—that is to say, to retain it in the same voice in which it first appeared. (Compare § 113.) It will also be very often expedient to follow such a chord, according to the old rule, by another chord, the root of which is a fourth above its own.

499. Diatonic ninths are much rarer than diatonic sevenths, but are treated in the same manner, the ninth falling one degree, and the root generally rising a fourth. We give one example.

Cherubini. Mass in F.

Exercises on Chapter XVIII.

(I.) Hymn Tune.

(II.) Hymn Tune.

(III.)

(IV.)

(V.) Hymn Tune.

(VI.)

CHAPTER XIX.

SUSPENSIONS.

500. With the exception of the auxiliary notes explained in Chapter XI., all the discords hitherto treated of have been *essential* discords—that is to say discords in which the dissonant notes have been essential parts of the harmony. But there is a large and important class of discords in which the dissonant notes are unessential to the chord and in fact do not belong to it at all, but are merely held on from the preceding chord. Such discords are termed SUSPENSIONS.

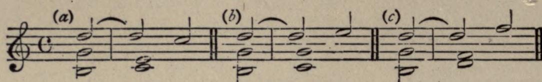
501. A suspension may be very simply defined as *a note of one chord held over another of which it forms no part.* The sounding of such a note as a note of a chord is called the *preparation* of the suspension (compare § 486); the holding of the note over the following chord, to which it does not belong, is the *suspension* itself; and the ultimate progression of the suspended note to its place in the chord is called its *resolution.**

502. At first sight a suspension would seem to have considerable resemblance to the prepared diatonic discords spoken of in the last chapter; but it differs from them in two very important respects. In the first place a prepared diatonic discord is always an essential note of the chord, and a suspension never is; and, secondly, a diatonic discord may be used on any part of a bar, while a suspension can only be introduced on an accented beat—the first or third beat of a bar of common time (or, if the passage be in quavers, on the first half of each crotchet), or on the first or second beat of the bar in triple time.

503. The general rules governing the treatment of suspensions are extremely simple. It will be convenient first to enunciate them as clearly as possible, and then to give examples enforcing the rules from the works of the great masters.

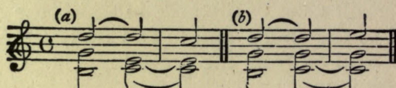
504. I. Any note of one chord may be suspended over the following chord, provided that it is able to move by step of a second upward or downward to one of the notes of that chord. For example—

* Evidently a suspension cannot be prepared by a passing note, for that would not be a note of the preceding chord.



at (*a*) the D of the first chord is held over the chord of C, and moves down by step to the octave of the root; and (*b*) it rises by step to the third of the chord. But at (*c*) there is no suspension; because the D is a note of the second chord, and moves by leap of a third; besides which a suspension cannot form a part of the chord over which it is held. (§ 501.)

505. II. The preparation of a suspension (that is, the sounding in the preceding chord of a note to be suspended) must be in the same voice, and may not be on a stronger accent than the suspension itself. Thus, if we alter the position of the bars in (*a*) and (*b*) of the above example,
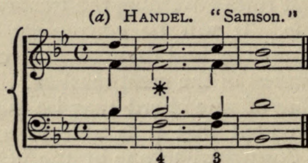


the passage is faulty, because the suspension is prepared on the first beat of the bar, and appears on the second. It is, however, possible for the preparation also to be on a strong beat—
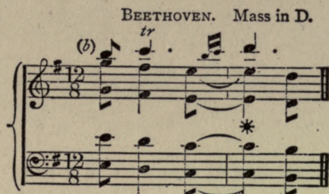


506. III. The suspension must always be on an accented beat of a bar; the suspended note may be either tied or repeated; and the resolution of the suspension should be on a less strongly accented beat than the suspension itself.

507. IV. If the suspension be tied to its preparation, the latter should be of at least equal length with the suspension; it may be longer, but it should not be shorter. When the suspended note is sounded again, this rule is not so strictly observed; *e.g.*—



Here the B flat in the second chord is not a part of the dominant triad; neither have we here a chord of the eleventh, for that chord is not used without the seventh (§ 375). The note B is

therefore a suspension of the value of a dotted minim; but its preparation is only a crotchet. Occasional exceptions from this rule are to be found, as in the following passage—

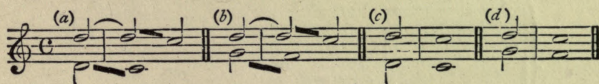


where a suspended crotchet is prepared by a quaver, but the student is advised to adhere strictly to the rule here given.

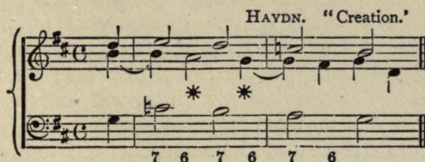
508. V. The note on which a suspension resolves may be sounded at a distance of at least an octave below the suspension; but should not be heard above it, excepting sometimes in the suspension of a whole chord, as we shall see later, when all the parts move by step of a second (§ 515 (*d*)). This exception is illustrated at example (*b*) above, where D is heard above its suspension E, all the parts moving by step.

509. VI. As a suspension is only a temporary substitute for the harmony note which follows it, a progression which would be incorrect without a suspension is not justified thereby.

For example,
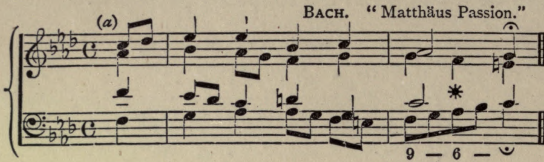


the suspension (*a*) involves the same consecutive octaves as are seen at (*c*); and (*b*) the same consecutive fifths as at (*d*). This rule, however, is not always strictly observed by the old masters in the case of fifths, where the progression is less unpleasing than with the octaves.



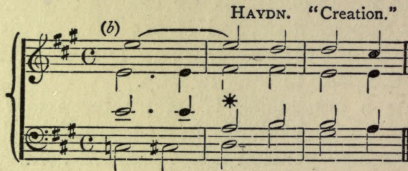
If the suspensions are omitted here, we have clearly consecutive fifths between the two upper parts; but the effect of the passage is quite unobjectionable.
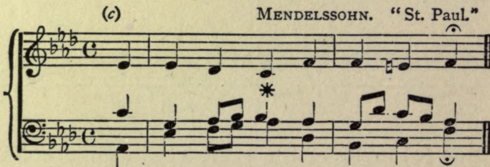
510. VII. A suspension always resolves on the chord over which it is suspended; and it is by no means unusual for the

chord to change its position on the resolution of the suspension, as in the following example :—



Here the G in the last bar of the alto is a ninth suspended over the root position of the chord of F minor. At the moment of resolution the bass goes to A flat, and the suspension is resolved on the first inversion of the same chord. The student will hardly need to be reminded that G and B in the bass are passing notes. But if the root of the chord changes at the moment of resolution, the preceding chord is not really a suspension.

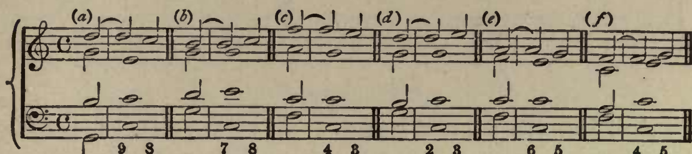




The E in the second bar of example (*b*) would be a suspension of the octave by the ninth, if the second chord of that bar were the chord of D; the fact that the root changes to B proves that the first chord is a diatonic ninth. Similarly at (*c*) the B♭ in the tenor of the chord ✱ cannot be a suspension of the ninth; for the root rises a fourth to D♭, when the B resolves; we have here an incomplete chord of the diatonic ninth, with only root, third, and ninth present. A somewhat different example will be seen at 191 (*a*). The E in the alto of the second chord looks like a fourth suspending the third of B, but the resolution on a different root shows that it is really an incomplete chord of the dominant eleventh. When the ninth and eleventh resolve on their own roots, they are very rarely found without the seventh.

511. It was said just now (§ 504) that any note of a chord can be suspended over the next chord, provided it can move by step

to a note of that chord. But to this general rule there are certain practical limitations.



At (*a*) the root is suspended by the ninth and at (*b*) by the seventh; at (*c*) the third of the chord is suspended by the fourth, and at (*d*) by the second. At (*e*) the fifth is suspended by the sixth, and at (*f*) by the fourth. These last suspensions are very seldom used; that at (*e*) is ambiguous, as the first chord in the bar may be regarded as a chord of the thirteenth with only generator, third, and thirteenth present (§ 410), resolving upon its own generator. It may be remarked here that, excepting the suspension of the leading note over the tonic chord, as at (*b*), the suspensions resolving upwards are much rarer than those resolving downwards.

512. The practical limitations just referred to are seen as soon as we try to suspend any of the higher notes of a fundamental chord. The seventh cannot be delayed by a suspension, because the note below it is the thirteenth from its generator, and the note above it is the octave; similarly the notes above and below the ninth, eleventh, and thirteenth are all notes of the same harmony; and a suspension has been defined as a note held over a chord *of which it forms no part*. In practice therefore, the only available suspensions are those given above; but these may be taken in any part of the harmony, and even, as we shall see presently, in two or three parts at once.

513. The figuring of suspensions will give the student little trouble, if he will bear in mind the often repeated rule that the figures simply indicate the distance of certain of the upper notes from the bass. But, inasmuch as some suspensions bear the same figuring as some of the chords which have already been studied, it is very important to know how to distinguish between a suspension and a chord which is figured in the same way.

514. If we look at example (*a*) of § 511, we shall see that it is figured like a chord of the ninth. But if this were really a chord of the ninth resolved on its own generator, the seventh would be present, or if not, would certainly be introduced when the ninth resolved (§ 325). The resolution and the form of the chord therefore prove the 9 to be here a suspension.

515. If we take the inversions of the same chord, still retaining the suspension,

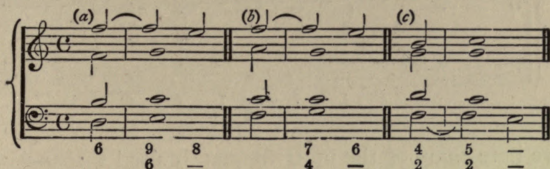
we shall find that the first inversion (*a*) is figured like a chord of the seventh. But if it were a fundamental seventh it would have a major, not a minor third, and it could not possibly resolve on the chord of C. If it were a diatonic seventh (see Ch. XVIII.), it would resolve on a root a fourth, or a second above its own. The resolution proves it to be a suspension. Whenever the figure 7 is followed by 6 on the same bass note, 7 indicates a suspension of the sixth, not a chord of the seventh. There is no mistake which students are more apt to make than to confound the two meanings of the figure 7. Whenever it is a suspension of 6 (which implies $^{6}_{3}$), *the seventh must not be accompanied by the fifth;* because the fifth is not a note of the chord of the sixth over which the seventh is suspended.

516. The same reasoning applies to examples (*b*) and (*c*). The figures $^{6}_{5}$ and $^{4}_{2}$ are the same as for the first and third inversions of a chord of a seventh; but the resolution in each case shows that we have here only suspensions. If the $^{6}_{5}$ at (*b*) were the first inversion of a seventh, it could not resolve on its own bass note, but would resolve on the chord of A minor; as would also the $^{4}_{2}$ at (*c*) were it really the last inversion of a seventh. As the chords are only suspensions, the $^{6}_{5}$ must contain no third, and the $^{4}_{2}$ no sixth; these notes being no part of the harmony on which the suspension is resolved.

517. It has been said above (§ 508), that the resolution of a suspension should not generally appear above it. In order to avoid this, the leading note at (*c*) leaps upwards to the third of the next chord. In this case, however, it would be possible (though less usual) for the resolution to appear above the suspension, as at (*d*). Such a progression is allowed when all the parts move, as here, by step. This suspension would be figured $\begin{smallmatrix}7\\4\\2\end{smallmatrix}$, and there is no danger here of confounding it with an inversion of a seventh.

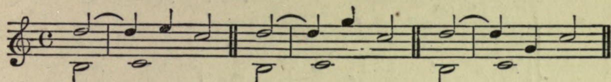
518. For the sake of completeness, we now give the inversions of the suspended fourth shown in (*c*) § 511, with the figuring of

each. The suspended fourth is distinguished from a chord of the eleventh by the absence of the seventh (§ 375).

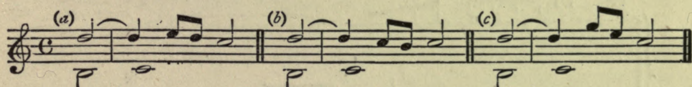


After what has already been said, the student will have no difficulty in understanding these inversions.

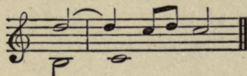
519. Like the chord of the seventh (§ 202), a suspension can have an ornamental resolution. This is effected by giving the suspended note only half its proper length, and interposing between it and the note of its resolution either a note of the chord taken by step or leap,



or notes of shorter value, which may be either harmony notes or a mixture of these with auxiliary notes, the latter being of course subject to the rules given in Chapter XI.



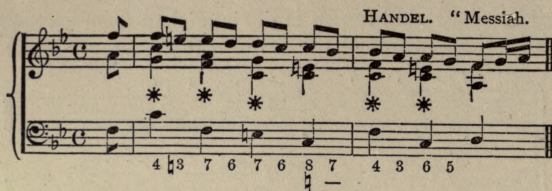
The resolutions at (*a*) and (*b*) are very common; that at (*c*) is rarer, and less advisable. In example (*b*) it must be remarked that although the suspension takes the note of its resolution, C, on the second crotchet of the bar, this is not counted as its actual resolution, because it does not remain there. If after descending to C we had returned to D for the second quaver,



the progression would have been monotonous and weak.

520. Occasionally in the case of an ornamental resolution of a suspension, the preparation of the suspension will be only of the same length as the suspension without its ornamentation. Though examples of this are not infrequent, the method is not recommended for the student's imitation.

521. We shall now give a series of examples illustrating the treatment of suspensions by the great masters. Our first extract will be a well-known passage from the "Messiah."



We have here some of the most frequently used suspensions. At the first crotchet of the bar is 4 3, at the second and third, 7 6 (the first inversion of the suspension 9 8). There is no suspension at the last crotchet of the first bar, because the quaver C is a note of the harmony. The second crotchet of the second bar shows the somewhat rare and always ambiguous (§ 511) suspension 6 5.

522. Our next illustrations—

(*a*) SCHUBERT. "Rosamunde."

sf

9 8

(*b*) BACH. Organ Fugue in C minor.

5 — 9 8
2 — 6 —

show the ninth suspending the octave. At (*a*) the octave is the root of the chord; at the last bar of (*b*) it is the third of the chord; the 9 is therefore accompanied by 6, and we see here, as at § 518 (*a*), the first inversion of the suspended fourth. The second bar of this extract shows the last inversion of the same suspension (compare (*c*), § 518).

523. We shall now see the two suspensions 9 8 and 4 3 in their second inversions.

(*a*) MENDELSSOHN. "St. Paul."

6 —
5 4

Beethoven. Mass in D.

(*b*)

The chord ✱ at (*a*) is the second inversion of 9 8, as will be seen by reference to (*b*) § 515. At (*b*) the third crotchet is the second inversion of 4 3—compare § 518 (*b*). The last bar of this example also shows the rare first inversion of the suspension 6 5.

524. In the following example,

Mendelssohn. "St. Paul."

is seen in the second bar the last inversion of the suspension 9 8, the third and fifth of the chord being at a distance respectively of the second and fourth above the ninth. The root position of the suspension 4 3 will also be seen in the last bar.

525. We now give examples of suspensions resolving upwards. Some theorists call these "Retardations"; but there seems no reason for giving a different name to them. By far the most common upward suspension is 7 8—the suspension of the root of a chord by the note below it.

Bach. Organ Prelude in E minor.

(*a*)

Beethoven. Sonata, Op. 10, No. 1.

(*b*)

The first of these passages is too simple to require explanation. Example (*b*) is interesting not only for the 7 8 in the second bar, but because in the first bar we see the second inversion of a dominant eleventh, looking like a suspended fourth (§ 518), not, as before in a triad, but in a chord of the dominant seventh. The last bar also contains a very rare inversion—9 8 as the second inversion of 6 5.

526. We hardly ever find a 7 8 suspension except on the tonic of the key. The following passage, therefore, deserves noting for its rarity.

WAGNER. "Die Meistersinger."

7 8

Here the submediant of the key is suspended by the dominant.

527. The two examples next to be given show the first inversion of the suspension 7 8.

(*a*) BACH. "Gott der Vater wohn'uns bei."

7 6 9 8 7 6 5 6 9 8 6 — 8 7
6 5 4 4 3

(*b*) BACH. "Wachet auf! ruft uns die Stimme."

7 6 5 6
5 —

The first of these extracts is very rich in suspensions; the student has already met with all of them excepting the one marked ✶. This at first sight looks like the triad on the mediant; that it is not so is proved by the preceding chord; for a second inversion of a dominant seventh never resolves on a mediant chord (see Chapter IX.). The C is therefore the suspension of the following D.

528. The extract (*b*) is rather different. Here the root of the dominant chord, G, is suspended by a note a tone, instead of a semitone, below it. If we had here a chord of the seventh with

an ornamental resolution (§ 202), the F of the alto after rising to G would fall to E.

529. The following examples show the other inversions of 7 8.

(*a*) Bach. "Wohltemperirte Clavier," Book 2, Prelude I.

(*b*) Bach. "Wohltemperirte Clavier," Book 2, Prelude II.

In the last crotchet of (*a*) the harmony is that of the chord of A minor in the second inversion, the root in the upper part being suspended by the leading note. The chord ✱ looks like the root position of a dominant minor thirteenth, but, as at § 527 (*a*), this would be no proper resolution of the preceding dominant seventh; the chord is therefore a suspension. The last inversion of the same chord is shown at (*b*); and it will be observed that both the suspensions at (*a*) and (*b*) have ornamental resolutions.

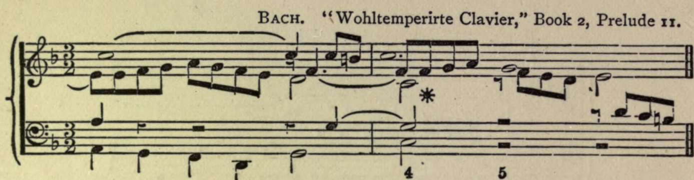
530. Though the 7 8 is the most common of the upward suspensions, it is by no means the only one. It is not rare to find the third suspended by the second. Many examples of this might be quoted from Bach; but as all our last extracts have been taken from that composer, we select two more modern passages.

(*a*) Beethoven. Quartett, Op. 18, No. 3.

(*b*) Dvořák. "Stabat Mater."

At (*a*) the third of the supertonic chromatic minor 9th is suspended over the first inversion of the tonic chord, and rises a semitone; at (*b*) the second of the chord is suspended over the third. The last bar of this passage shows a very curious doubling of a suspension; the C is suspended both in alto and tenor, one part falling and the other rising to the note of the harmony.

531. The suspension 4 5 is extremely rare, though tolerably common in its inversion $\begin{smallmatrix}6 & — \\ 2 & 3\end{smallmatrix}$, an example of which is seen at (*a*) § 530. We give an instance of the 4 5 in its less usual form.



532. We have already met with a few cases of ornamental resolution; we add two more.

(*a*) MOZART. Sonata in A minor.

7 8 6

(*b*) CHERUBINI. Mass in F, No. 1.

7 8 6

At (*a*) the resolution is approached by leap of a third from a harmony note a second from the suspension. In the last bar of (*a*) there is no suspension; the student will easily see why. At (*b*) is the very common ornamental resolution where the suspension leaps to another note of the harmony before returning to its note of resolution.

533. Two or more notes of a chord may be suspended at the same time, or a whole chord may be suspended over the following one. If two notes are suspended, this is called a "Double Suspension"; if three or more are suspended, it is usually called the "Suspension of a complete chord."

(a) Mendelssohn. "St. Paul."

9 8
7 6

♮9 8
4 3

Cherubini. Mass in C, No. 4.

(b)

9 8
7 6

We see here examples of double suspensions, which will require no further explanation.

534. The following example is rather more intricate :—

Mozart. Sonata in F.

Here is a series of double suspensions, in every case with an ornamental resolution which is frequently chromatic. In the first three bars the two lower parts are suspended, and in the fourth and fifth bars the two upper parts. We have not figured the bass of this example, because no ordinary system of figured bass will apply to such unusual and chromatic progressions. It is of course *possible* to figure them, but the student would be more perplexed than assisted by the strange combinations which would be necessary.

535. We conclude this chapter by a few examples of the suspensions of complete chords. After the explanations already given, the student will have no difficulty in analysing them for himself.

(*a*) HANDEL. "Samson."

HELLER. "Promenades d'un Solitaire," Op. 78, No. 5.

(*b*)

(*c*) BEETHOVEN. Sonata, Op. 14, No. 2.

EXERCISES TO CHAPTER XIX.

[In these exercises many essential discords looking like suspensions are introduced, that the student may learn to distinguish between the two. See §§ 512, 525.]

(I.)

(II.)

(III.)

(IV.)

(V.)

(*a*) The figures here indicate a suspension of a complete chord, and the order in which they are placed shows on which note each suspension is resolved. Compare Exercise VI. to Chapter XV.

(VI.)

(VII.)

(VIII.)

(IX.)

(X.)

CHAPTER XX.

PEDALS.

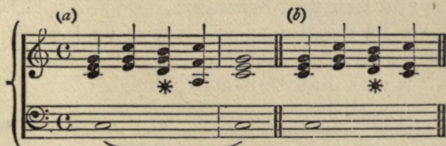
536. A Pedal is a note sustained by one part (generally, though not invariably, the bass) through a succession of harmonies of some of which it does, and of others it does not, form a part. The name is no doubt derived from the pedals of the organ, which are used to play the bass of the harmony, as is evident from the fact that what we call a pedal is called in France and Germany an "Organ-point."

537. There are few points in connection with harmony in which the rules given in old treatises differ more widely from the practice of modern composers. It will therefore be necessary in this chapter to modify very considerably the precepts of the old theorists. The more important of such modifications will be noted as they present themselves.

538. The note used as a pedal is almost invariably either the Tonic or the Dominant, the latter being the more common. A tonic pedal is mostly found toward the end of a movement, though it is sometimes met with at the beginning. A well-known instance of this is the opening of the Pastoral Symphony in the "Messiah."

539. It is not unusual for the same piece to contain toward the end both a dominant and a tonic pedal; when this is the case, the dominant pedal almost always comes first, the tonic pedal being reserved for the close. A very good example of this may be seen in the last ten bars of the great five-part fugue in C♯ minor in the first book of Bach's "Wohltemperirte Clavier."

540. When the pedal note forms no part of the chord above it, the note next above the pedal is considered as the real bass of the harmony for the time being, and is not allowed to move in a way in which it could not move were it a bass note. An example will make this clear.



At the third crotchet of (*a*) is the second inversion of the dominant chord over a tonic pedal. The pedal note is not a part of the chord; therefore D, the bass for the time being, may not leap to A (§ 165). But the progression at (*b*) is quite correct.

541. The following examples of dominant pedals require little explanation.

(*a*) CHERUBINI. Mass in F.

(*b*) HAYDN. 3rd Mass.

At (*a*) is a dominant pedal in the key of B flat minor, and at (*b*) a dominant pedal in the key of D major. Note that at the beginning of the second bar of (*b*) there is a momentary modulation to E minor, and at the end a modulation to A major, the dominant pedal thus becoming for the time a tonic pedal.
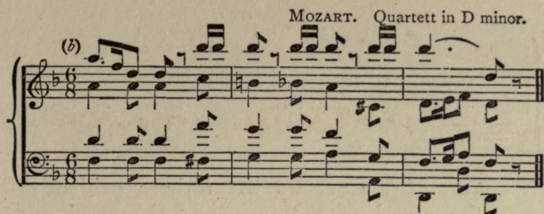
542. The end of the second fugue of Bach's "Forty-eight" gives an excellent example of a tonic pedal, ending with a "Tierce de Picardie" (§ 193).

BACH. "Wohltemperirte Clavier," Book 1, Fugue 2.

This passage illustrates a point of some importance which must here be noted. The fugue from which it is taken is for three voices (or parts), but the pedal note itself is not reckoned as one; it will be seen that in the last bar of the extract there are three parts exclusive of the pedal. This is a case of very frequent occurrence, both in three and four part harmony.

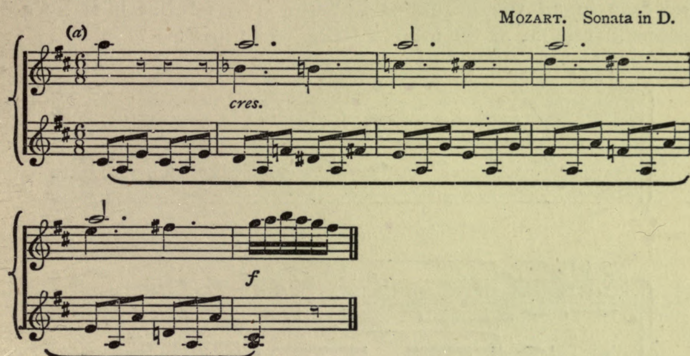
543. Though a pedal note is most often found in the bass, it is by no means unusual to meet with it in an upper part. In such a case it is called an "Inverted Pedal."
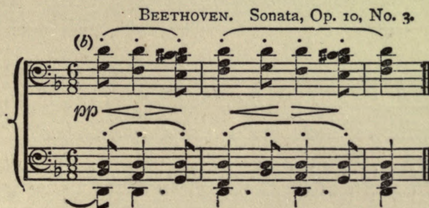
(*a*) BEETHOVEN. Mass in C.



At (*a*), of which the voice parts only are given, is seen the dominant in the upper part of the harmony, sustained as a pedal note, and at (*b*) is the tonic, also in the upper part, similarly treated.

544. Sometimes a pedal note is found at the same time above and below, as in the following examples:—
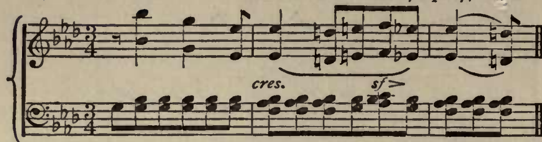




The student will remember what has so often been insisted upon—that broken chords (as in the bass of example (*a*) are harmonically the same as if all the notes were struck together (§ 192). At (*a*) we see a dominant pedal, and at (*b*) a tonic pedal in the highest and lowest part of the harmony at the same time; at (*b*) the pedal note is also in the middle.

545. A pedal note in a middle voice is somewhat rarer. Two examples have already been seen in § 303 (*e*) and § 349 (*a*). We add another of a somewhat different character.

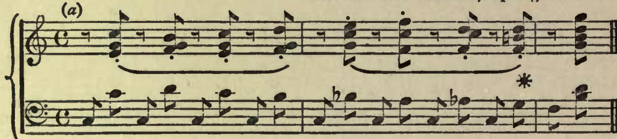
BEETHOVEN. Sonata, Op. 27, No. 1.



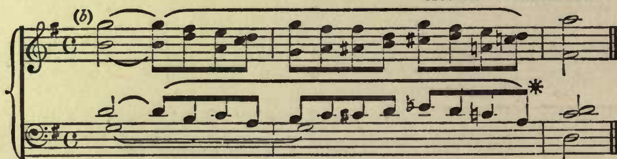
The fifth quaver of the second bar is here evidently the first inversion of the chord of F minor, and the B is a dominant pedal. The special interest of the passage arises from the fact of the pedal note being so close to the other notes of the harmony. In the orchestra, with different qualities of tone, such combinations are common enough ; on the piano they are very rare.

546. A pedal passage often begins, and generally ends, with a chord of which the pedal note itself forms a part. This has been the case in all the examples hitherto given ;* but it is by no means invariable, as the following passages prove :—
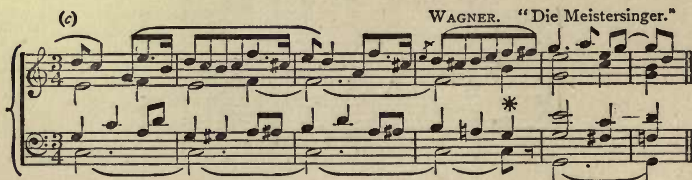
BEETHOVEN. Sonata, Op. 14, No. 2.



AUBER. "Masaniello."



WAGNER. "Die Meistersinger."



So much judgment and experience are required to know when it is advisable to quit a pedal in this manner, that the student is advised to adhere to the general practice rather than to imitate these somewhat rare exceptions.

547. The old masters seldom modulated much on a pedal ; beyond the keys in which the pedal was tonic or dominant they rarely ventured, excepting into the key of the supertonic minor,

* The old theorists give it as an invariable rule that a pedal point must end with a chord of which the pedal is one of the notes ; but in the light of modern practice this must be regarded as a recommendation rather than as a law.

as in the passage from Haydn, § 541 (*b*). Modern composers, however, recognise no such restriction; and almost any modulation may now be used on a pedal. It is, however, very rare to find much modulation on an *inverted* pedal.

548. The following examples of free modulation on a pedal will be instructive.

Mendelssohn. Variations, Op. 82.

cres

f

Here we see a dominant pedal in E flat; at the third bar a modulation is made to G minor, and the music continues in that key to the end of the extract.

549. Our next passages are more curious.

(*a*) Schumann. "Paradise and the Peri."

&c.

We have here a dominant pedal in B minor, with a distinct modulation to G major; in the continuation of the passage, a further modulation is made to E minor.

Schumann. Humoreske, Op. 20.

(*b*)

sf

sf

fff

P

On this dominant pedal in B flat is a modulation to the very remote key of E minor, the music returning at once to the key of B flat.

550. Two examples by living composers will conclude our illustrations of this point.

(*a*) Dvořák. "St. Ludmila."

&c.

Here is seen a tonic pedal in D minor, on which is a modulation to the keys of C and B flat.

(*b*) Mackenzie. "Jason."

&c.

In this passage there is a dominant pedal in D, with a modulation in the third bar to the key of F.*

551. It is possible, though rare, to introduce ornamentation on a pedal note. In his organ fugue in D minor in the Dorian mode, Bach has a shake on a pedal; and towards the close of the finale of his symphony in A, Beethoven introduces a pedal E alternating with an auxiliary note.

&c.

552. A double pedal, with both dominant and tonic sustained, is sometimes to be met with; but in this case the tonic must be below the dominant, otherwise the fourth above the bass will

* Some theorists strictly forbid any modulations on a pedal except those referred to in § 547; but, provided the modulations are properly managed, the restriction appears unnecessary

produce an unpleasant effect. An example will be seen in § 475. With a double pedal it is rare to find chords of which neither pedal note forms a part. A very fine example of a double pedal, which is unfortunately far too long to quote, will be found at the end of No. 2 of Brahms's "Deutsches Requiem."

553. Schumann, in the second movement of his symphony in E flat, has tried a novel experiment, which (so far as we are aware) has never been imitated. In the episode in A minor of that movement, he has used the mediant, C, as a pedal note. A few bars would not be sufficient to give a fair idea of the passage; we must therefore refer our readers to the work itself.

Exercises to Chapter XX.

[The figures in these exercises will require careful attention, as numerous combinations will be found not hitherto met with. In a few cases where four figures are placed under a pedal, it indicates that there is to be four-part harmony exclusive of the pedal note itself.]

(I.)

(II.)

(*a*) From this point there should be four parts above the pedal.

(III.)

(IV.)

(V.) Hymn Tune.

[The following exercise will be found more difficult than any of the preceding. At the third and fourth bars an inverted pedal (§ 543) is introduced; while the last two bars have a pedal note both above and below (§ 544).]

(VI.)

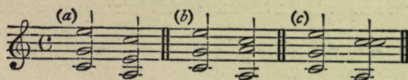
CHAPTER XXI.

HARMONY IN FEWER AND MORE THAN FOUR PARTS.

554. Though four-part writing is justly considered the foundation of harmony, it is very seldom that a composition of any greater dimensions than a hymn-tune is found in which the harmony is in four parts throughout. Even in a quartett, one part, and sometimes two, often have rests; while in instrumental compositions we frequently meet with passages in five, six, and even more parts. We shall therefore conclude this book with a chapter explaining the general principles by which a composer is to be guided when writing in fewer or more than the four parts hitherto treated.

THREE-PART HARMONY.

555. In writing in three parts, it is clear that if all the notes of a triad are present none can be doubled. It is advisable, where practicable, to introduce all the notes of the triad; but it frequently becomes needful to omit the fifth, *e.g.*,



If the chord of C be followed by the chord of A minor, both being in root position, and with the third of each chord at the top, it is clear that if we introduce the fifth in both chords, as at (*a*), we shall have consecutives; it will therefore be necessary to double either the root, as at (*b*), or the third, as at (*c*), in the second chord, the former being preferable.

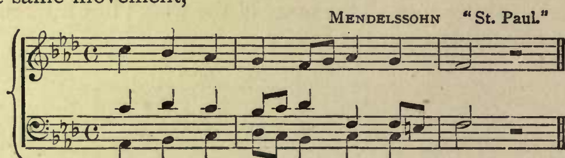
556. In chords containing more than three notes, the most characteristic notes of the chord should be retained. Thus in a chord of the seventh, if the root be present, the fifth should be omitted, so as to keep the third and seventh; similarly, in a root position of a chord of the ninth, either the third or seventh, and in an inversion of the ninth both these notes should be retained. Not seldom, however, one of the parts takes two notes of the harmony in succession, as in the last bar of the example § 425, where the upper part moves from the seventh to the fifth, and the middle part from the fifth to the third of the chord. In this passage, though there are four notes, we have only three-part harmony, with one part doubled in the octave (§ 98).

557. In instrumental music, three-part harmony is often virtually in four parts because of one of the parts moving in arpeggio.

For instance, at example (*a*) of § 419, there are never more than three notes sounded at once; but the middle part being in arpeggio, there is practically four-part harmony throughout. This is not three-part writing in the sense in which we are treating of it now.

558. The rules for the position of the chords given in §§ 127, 128, apply no less to three-part than to four-part harmony. The parts should either be at approximately equal distances, as at example (*c*), § 510, or the largest interval should be between the bass and the part next above it, as at § 509. But in vocal music the compass of the voices may render it necessary to break this rule. Cherubini's first mass is written for three voices—soprano, tenor, and bass; and at § 532 (*b*) will be seen an extract in which it would be impossible to place the tenor nearer the soprano than the bass. At § 532 (*a*) the rule just given is observed.

559. In a full cadence in three parts it is desirable that the penultimate chord (the dominant in its root position) should be in as complete a form as possible, even if this involves leaving the final chord incomplete. Thus in the example just referred to, § 510 (*c*), the last chord but one contains root, third, and seventh; and the fifth is omitted in the tonic chord. In the final cadence of the same movement,



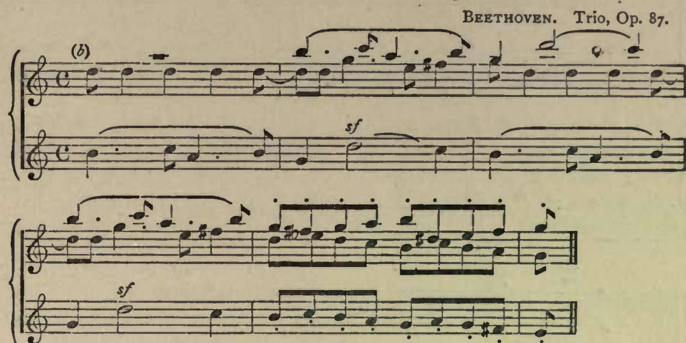
the tonic appears without either third or fifth.

560. The close of the example just given illustrates another important principle—that the part-writing should have special regard to the motion of the separate parts. The fewer the parts, the more clearly each is individualised. Had Mendelssohn made his tenor leap to A♭ for the sake of having the third in the last chord, the purity of the part-writing would have been impaired.

561. We now give two examples, one vocal and one instrumental, to illustrate the principles laid down.

(*a*) MEYERBEER. "Robert le Diable."

This passage is the opening of the unaccompanied trio in the third act of the opera. Notice how the chords are mostly complete, and observe the reasons for the exceptions.



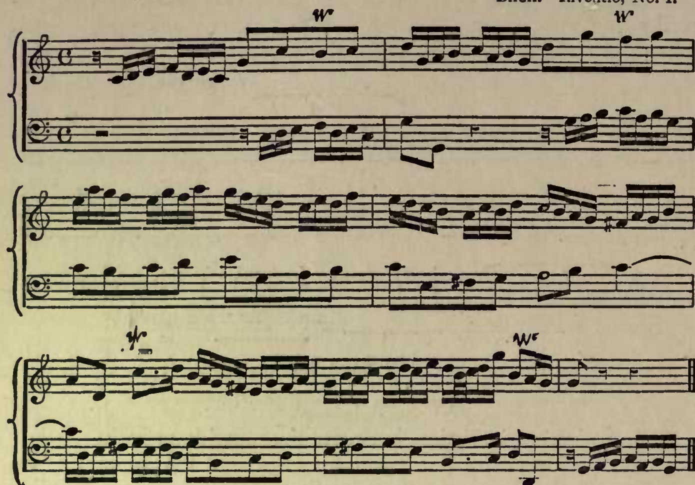
Here is a piece of imitation between the outside parts in the first four bars. In the fifth bar it will be seen that for the sake of an easy flow of the parts, the two leading notes, which are implied (F♯ in the fourth quaver and D♯ in the eighth), are omitted, though they are important notes of the chord. As an excellent specimen of pure three-part harmony, the student is recommended to analyse the trio "Lift thine eyes," in "Elijah."

TWO-PART HARMONY.

562. Harmony in only two parts differs in one very essential respect from harmony in three or four. As every chord consists of at least three notes, it is obviously impossible here to have any chord in a complete form. In two-part writing, therefore, the harmony is merely suggested or indicated, and the chords are only outline, or skeleton chords.

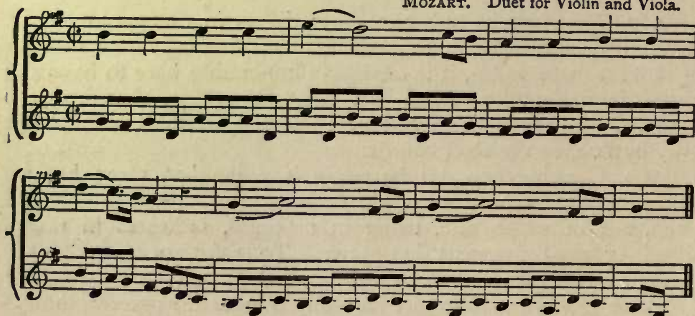
563. Genuine two-part harmony is somewhat rare; but we very often in instrumental music find passages written in only two parts, but of which one, being in arpeggio, indicates in reality three, or even four-part harmony. To refer to some of the extracts already quoted in this volume, at §§ 191 (*b*), 265 (*d*), 291 (*f*), and 333 (*b*), a three-part harmony is evidently present, though the notes of two of the three parts are sounded in succession, instead of together; while the passages at §§ 265 (*c*) and 428 (*b*) no less clearly indicate four-part harmony.

564. It is common even in the strictest two-part writing (which is found more frequently in instrumental than in vocal music) to find broken chords, as in the examples above referred to. There is not the least objection to these; the important point is that the suggested harmony shall be perfectly clear. Some of the most masterly specimens of two-part harmony ever written are Bach's "15 Inventions"; the opening of the first is given here.



Let the student examine this passage carefully, and notice how distinct is the indication of every chord. The addition of middle parts here would increase the fulness, but not the clearness of the harmony.

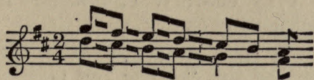
565. Our next example will be of later date.



Here, while we have several broken chords, a great part of the harmony is strictly in two parts, an additional part being scarcely suggested.
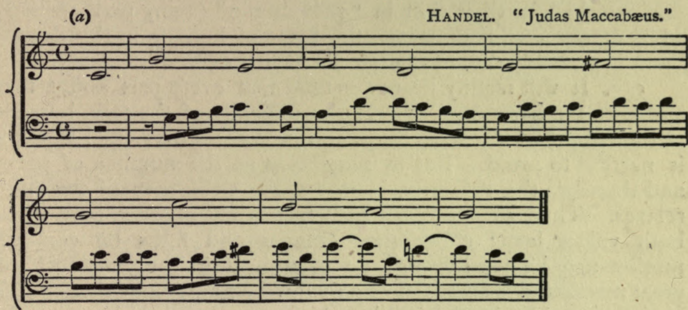
566. Two-part harmony continued for any length of time is comparatively rare in vocal music; even in duets for voices the harmony is mostly completed by the accompaniment. As an example of this, let the student refer to the extract from the duet "The Lord is a man of war" quoted in § 344 at (*b*). Here the two voice-parts, which are printed on the upper staff, are supple-

mented by the orchestra. The rule in such cases as this is that the voice parts must make correct, though not necessarily complete harmony by themselves. A progression of two voices in fourths thus—

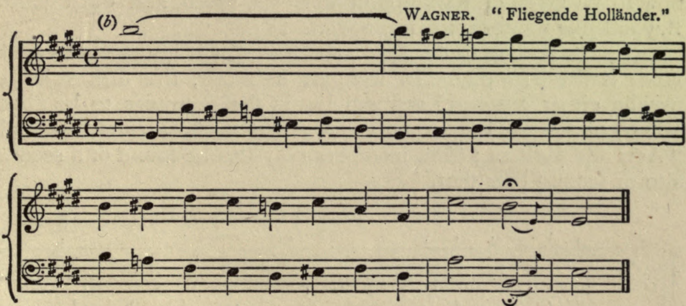


would therefore be incorrect, even although an instrument played in thirds below the lower voice. If another voice adds the thirds below, the harmony will be correct. The passage just given is taken from the trio "Lift thine eyes" in "Elijah," omitting the lowest voice part.

567. We now give two examples of vocal two-part harmony. The first—



is the commencement of a double fugue given out by the alto and tenor voices. The second—



is a *cadenza* for unaccompanied solo voices. The fact of its being a cadenza is indicated in the original by its being printed in small notes; this also explains the irregular time of the first three bars. It will be seen that the outline of the harmony in this passage is perfectly clear.

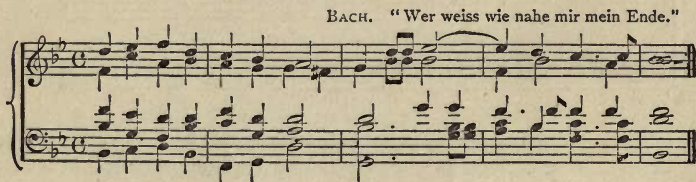
HARMONY IN MORE THAN FOUR PARTS.

568. There is hardly any limit to the possible number of parts in which harmony may be written. Orazio Benevoli, an Italian musician of the 17th century, composed many masses and anthems for sixteen, and even for twenty-four voice parts. But the most astonishing feats in part-writing are probably Tallis's "Forty-part Song," and the "Kyrie and Gloria" in 48 real parts by Gregorio Ballabene. Such pieces are merely ingenious curiosities; but harmony in ten, twelve, and more parts is by no means uncommon in the works of Bach. The opening chorus of his cantata "Herr Gott, dich loben alle wir" (founded on the choral known in this country as the 100th Psalm) is mostly in fifteen real parts; and many similar instances might be given. Among modern composers, Brahms and Wagner are especially distinguished for their skill in "polyphonic" (many part) writing; while of our own countrymen the place of honour in this department is probably due to the late Rev. Sir Frederick Ouseley.

569. It will readily be understood that every part above four added to the harmony increases the difficulty of the task, because of the danger of incorrect progressions, consecutives, &c., which it is needful to avoid. But in proportion as the number of parts, and therefore the difficulty, increases, the stringency of the rules relaxes. Thus, hidden fifths and octaves are allowed, even when both voices leap; consecutive octaves and fifths by contrary motion may be used freely; we even meet in the works of the great masters with examples of a doubled leading note, though it is better to avoid this, if possible. No new rules need be given for writing in more than four parts; the practice of the best composers will be most clearly understood by a careful study of the examples now to be given of harmony in five, six, seven, and eight parts. Beyond this number it is not needful to go.

570. In adding to the four voice parts, it is immaterial which voice is the new one. In five-part harmony, the fifth voice is usually either a second soprano (as in the examples to be given below) or a second tenor, as in the five-part choruses of Handel's "Acis and Galatea;" but instances may also be found of a second alto or second bass part.
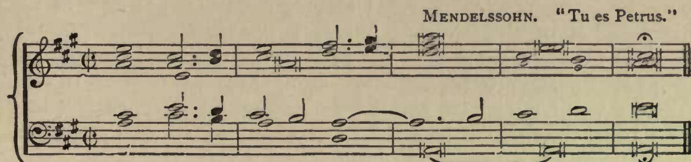
BACH. "Wer weiss wie nahe mir mein Ende."



This passage, from one of Bach's cantatas, is for two trebles, alto, tenor, and bass. We have placed the alto part on the lower staff,

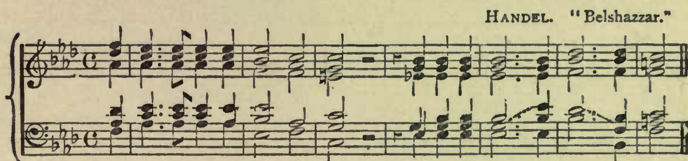
instead of the upper, as usual, because it makes the passage clearer to read.

571. Our next example is arranged in the usual way, the two trebles and the alto being on the upper staff.



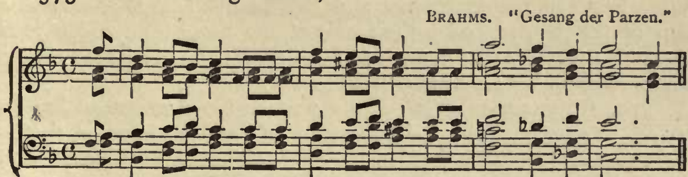
It will be seen that in the last bar but one the A and G on the upper staff are printed in small notes. The third of the chord, G, could not well be omitted, and Mendelssohn has therefore added it in the orchestra, as he had left no voice available. He might, however, have easily managed it, had he arranged the upper parts in the third bar thus . As this would have been a more usual position for the chord, it is difficult to see why he did not adopt it.

572. Our next illustration will be in six parts.



This passage is written for two trebles, alto, two tenors, and bass. The dotted lines on the lower staff indicate that the tenor parts cross each other. In the fifth and sixth bars the first tenor has B throughout. In more than five parts, and sometimes even with five, it becomes needful to cross the parts in order to avoid consecutive fifths or octaves. This is not the case in this particular passage, where the crossing seems to be the result of a wish to give melodic interest to the second tenor part; but in the passages in seven and eight parts to be quoted shortly, such a procedure often becomes absolutely necessary.

573. The following extract,



which is written for treble, two altos, tenor, and two basses, affords illustration of some other points. Notice in the first chord the crossing of the tenor below the first bass to avoid consecutive octaves with the first alto. At the third crotchet of the second bar is an instance of a doubled leading note (§ 569); and in the last crotchet of the following bar is a doubled eleventh, one F rising to G, and the other falling to E in the following chord.

574. Seven-part harmony is comparatively rare. In the example we give we have printed the passage in score, as it would have been impossible, had it been condensed on two staves, to show clearly the progression of the different voices.

HANDEL. "Parnasso in Festa."

In this passage will be seen numerous crossings of the parts and the leading note doubled in every bar—at the end of the fourth bar it even appears in three parts. Between the last chord of the fourth bar and the first of the fifth are found consecutive perfect fifths between the first tenor and the bass. This is of course a slip of the pen, probably the result of the haste with which it is notorious that Handel composed; but such slips are by no means uncommon in his seven and eight part writing.

575. Choruses in eight parts are much more common than in seven. Sometimes they take the form of double choruses, that is for two separate choirs, as in Handel's "Israel in Egypt" and Bach's "Passion according to Matthew;" at others as in

Handel's "Athalia" and Mendelssohn's 114th Psalm, we find only one choir, but with all the voices divided. We give one example of each arrangement.

CHERUBINI. Credo à 8 Voci.

1st Choir. S.A. T.B.

2nd Choir. S.A. T.B.

Here we have printed each choir in "short score" (§ 143), as in previous examples. The part-writing here is remarkably pure, and will repay close study.

576. In our second illustration

MENDELSSOHN. "Am Himmelsfahrtstage," Op. 79, No. 3.

Sop. 1, 2. Alto 1, 2. Ten. 1, 2. Bass 1, 2.

we have only one choir instead of two; the voices are therefore

arranged differently. It will be seen that after the first two bars the harmony is only in seven parts.

577. Much of what is called eight-part writing is not really such. For instance in Mendelssohn's Octett for eight stringed instruments, when all are employed at once some of the parts are mostly doubled in the octave or unison. This can be seen in the quotation given from this work at (*a*) § 351. Though there are eight notes, the harmony is not in more than five parts, some of which are doubled. Even in the strictest writing it is frequently expedient, for the sake of variety and contrast, to give rests to some of the voices, as great fulness of harmony, if too long continued, becomes tedious.

578. In concluding this work, we offer one piece of advice to the student. Much, but not all, can be learned from a text-book; if the principles underlying the science of harmony are thoroughly grasped, endless instruction is to be gained from the study of the great masters. It is from their works that the rules laid down in this volume have been deduced; the best theory is that which agrees most closely with their practice. It is impossible to make any text-book absolutely exhaustive; for art is always progressing. Let the earnest student, therefore, while founding his practice mainly on the example of the acknowledged masters of the past, not neglect to acquaint himself with the more modern developments of music; let him welcome what is excellent, from wheresoever it may come; and let his motto be, "Prove (*i.e.* test) all things; hold fast that which is good."

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